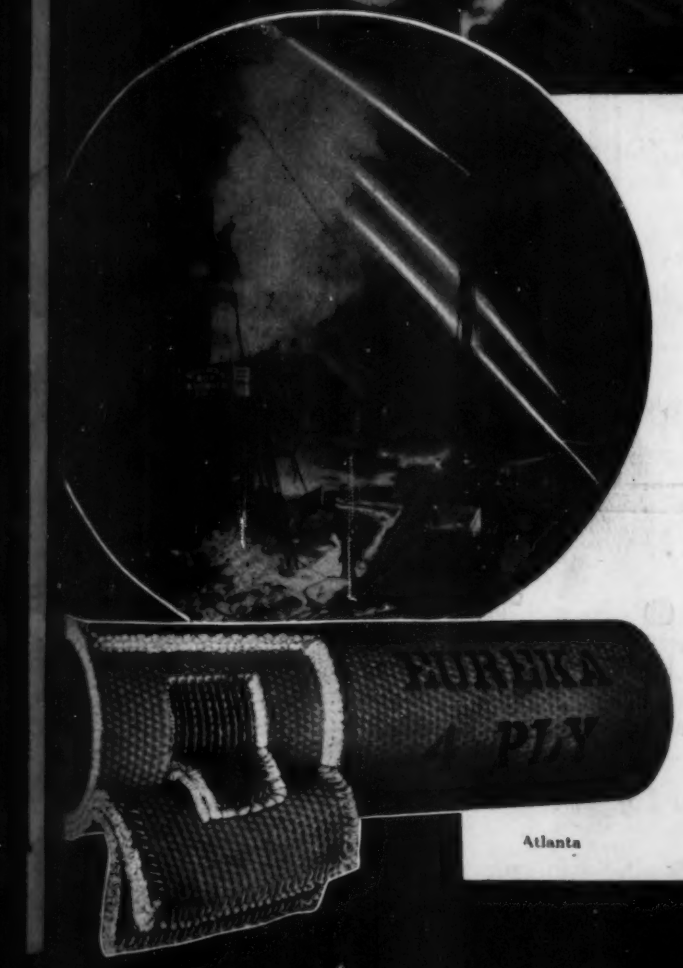
FIRE ENGINEERING

A Consolidation of
FIRE AND WATER ENGINEERING *and* THE FIRE ENGINEER

OCTOBER 10, 1926



CONNECT UP WITH EUREKA—
at the Convention!

Each year, when we greet our many friends among the Association at the Convention, we hear new stories of the remarkable performances of Eureka Fire Hose.

We are justly proud of the reputation which Paragon and the other famous brands of Eureka manufacture have enjoyed for over fifty years among fire departments from coast to coast.

When the fire sirens sound and there's a stiff battle with the flames ahead, you have absolute "water insurance" when the hose in the wagons is branded "Eureka."

Eureka Fire Hose Manufacturing Co.
Main Office, 50 Church Street
New York City

Atlanta
Boston
Chicago
Columbus
Dallas

Denver
Detroit
Kansas City
Los Angeles
Minneapolis
Philadelphia
Seattle
Syracuse

The Hardest FIRE I Ever Fought

No. 19 *of a series of experiences of our noted Fire Chiefs*

J. W. WEAVER
Chief of Fire Department
Nashville, Tenn.

With a total of 978 churches, schools, stores, garages, dwellings and other buildings involved, our March 22nd, 1916 fire was undoubtedly the hardest one we have ever encountered.

A street box alarm came in at 11:49 A. M. while a general alarm immediately after that called out the Chief, Asst. Chief, 120 regular men and all members of the repair shop with 14 engine pumpers and 2 aerial trucks to combat a fire covering an area of two and a quarter by a quarter mile in size with the wind blowing 48 to 66 miles an hour.

Under these conditions our men certainly had a real job on their hands and deserved a lot of praise for getting the fire under control by 4:45 in the afternoon.

The property loss was $1,553,752 made up largely from the total destruction of buildings of frame construction and non-fire-resisting roofs. One of our steamers was destroyed, two firemen were injured, and a civilian unfortunately lost his life from a falling electric wire.

J. W. WEAVER
Chief of Fire Department
Nashville, Tenn.

Goodrich Hose was used in bringing this fire under control. For fifty-six years its unvarying superior quality has played a leading part in developing national fire fighting efficiency.

THE B. F. GOODRICH RUBBER COMPANY
ESTABLISHED 1870 *Akron, Ohio*

Goodrich
FIRE HOSE

"Best in the Long Run"

It's here!

THE "SEAGRAVE SPECIAL"

Pumping Engine

600 GALLONS CAPACITY **MORE THAN 100 HORSE POWER**

PRICED LOWER THAN SEAGRAVE PUMPERS, OF THIS CAPACITY, HAVE EVER BEEN OFFERED

Speedy ***Light Weight*** ***Efficient***

On Display for the First Time at the I. A. F. E. CONVENTION at NEW ORLEANS, OCTOBER 19th to 22nd.

Special Notice—Don't fail to see the famous I. A. F. E. motion picture "The Fire Brigade." This picture will be given its initial showing at the convention. Notice the Seagrave Apparatus used in this picture.

The SEAGRAVE Corporation

Columbus, Ohio

Boston, Mass. **New Haven, Conn.** **Birmingham, Ala.**
Seattle, Wash. **Philadelphia, Pa.** **Chicago, Ill.**
San Francisco, Calif. **Los Angeles, Calif.** **Dallas, Texas**
Pittsburgh, Pa. **Kansas City, Mo.**

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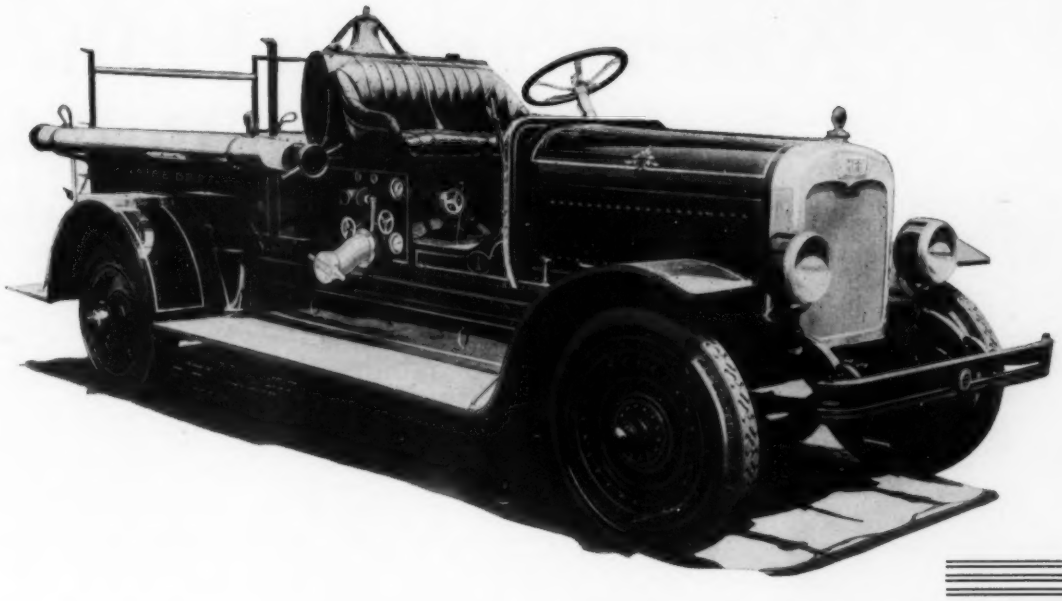
Milwaukee Selects A Waterous Dependable

After a thorough investigation, the city of Milwaukee selected the Waterous Rotary Pump for uses in the building of their own apparatus. This work was carried out under the supervision of Peter Steinkellner, Chief Engineer of the City of Milwaukee, by William F. Striebel, the Superintendent of Apparatus.

Here was a case of where there were no limitations placed on the builders. Their instructions were to "use only the best. We want the Apparatus to be right when it is finished."

And, when it came to the heart of the machine—the pump—they chose the Waterous because it

Waterous Dependable



met every demand that fire-fighting equipment makes of a pump.

No clogging or jamming at the time when it is most needed. A free, powerful flow of water insured at all times. A record of successful performance in the past that makes the phrase "Waterous Dependable" more than a mere slogan.

Why they placed their faith in the Waterous is obvious:

Long life, smooth operation, accessibility, high efficiency, rugged construction are the main reasons.

The Waterous pump is second to none. If you are in the market for a high-grade fire pump we will be glad to furnish you with complete information, prices, guarantees, etc.

WATEROUS FIRE ENGINE WORKS
INCORPORATED

St. Paul **Minnesota**

Also Manufacturers of the "Waterous" Fire Hydrant

Established 1886

Waterous
Dependable

American-La France On Proven

The popularity of American-LaFrance motor fire apparatus is wide spread and enduring. From all corners of the world come fire departments seeking the known advantages of American-LaFrance dependability.

*Aberdeen, Miss.	1	*Cedar Rapids, Ia.	1	*Fort Myers, Fla.	3
Aberdeen, Wash.	1	Center Line, Mich.	1	Fox Vaudeville Co.	1
*Albany, N.Y.	2	*Central Islip State Hosp., N.Y.	1	Franklin, Neb.	1
*Altus, Okla.	1	Centreville, Md.	1	*Franklin, N.J.	1
*Ambler, Pa.	1	*Cicero, Ill.	1	Fulford, Fla.	1
Amite, La.	1	*Claremont, N.H.	1	*Gastonia, N.C.	1
*Amityville, N.Y.	1	Clarendon Hills, Ill.	1	Georgia State Sanitarium,	
*Amsterdam, N.Y.	1	Clarksville, Ark.	1	Milledgeville, Ga.	1
Andrews, N.C.	1	*Clearwater, Fla.	1	Girard, Kan.	1
*Asheville, N.C.	1	Clinton, N.J.	1	*Glen Cove, L.I.	1
*Atlanta, Ga.	2	*Columbus, Miss.	1	*Glendale, Cal.	1
*Aurora, Ill.	1	Commerce, Tex.	1	Glendale, Mo.	1
*Baton Rouge, La.	1	*Corning, N.Y.	1	Guntersville, Ala.	1
Bayside, R.I.	1	Cottage City, Md.	1	Grand Islands, Neb.	1
*Beaumont, Texas	1	Creston, Ia.	1	*Grand Rapids, Mich.	3
Bellows Falls, Vt.	1	*Cuyahoga Falls, Ohio.	1	Greenwich, N.Y.	1
*Benton Harbor, Mich.	1	Dalton, Mass.	1	*Hammond, Ind.	2
Bergenfield, N.J.	2	*Dearborn, Mich.	1	*Hanover Township, Pa.	1
Berkeley, Mich.	1	Denison, Ia.	1	*Harlingen, Texas	1
*Berlin, N.H.	1	Denville, N.J.	1	*Harrisburg, Pa.	1
*Bernardsville, N.J.	1	Doylestown, Pa.	1	*Hendersonville, N.C.	1
Bethseda, Md.	1	*Dubois, Pa.	1	Hialeah, Fla.	1
Big Stone Gap, Va.	1	*Dubuque, Ia.	2	*Highland Park, Mich.	2
*Binghamton, N.Y.	3	Dumont, N.J.	1	*Holland, Mich.	1
Black Mountain, N.C.	1	*East Chester, N.Y.	1	Hopatcong, N.J.	1
Blowing Rock, N.C.	1	*East Orange, N.J.	1	*Hoquian, Wash.	1
Boonton, N.J.	1	East Peoria, Ill.	1	Horseheads, N.Y.	1
Boothyn, Pa.	1	*East St. Louis, Ill.	2	*Hudson, N.Y.	1
Buscowen, N H	1	Eatontown, N.J.	1	Hunter, N.Y.	1
*Boston, Mass.	10	*El Centro, Cal.	1	*Huntington, L.I.	1
*Bradenton, Fla.	1	*El Dorado, Ark.	1	Inlet, N.Y.	1
*Bridgeport, Conn.	1	Enumclaw, Wash.	1	*Irvington, N.J.	2
Brigantine, N.J.	1	Escondido, Cal.	1	*Jersey City, N.J.	5
Bristol, R.I.	2	Eunice, La.	1	*Johnstown, Pa.	1
*Bristol, Va.-Tenn.	1	Export Department Order—		Kamloops, B.C.	1
Brookshaven, Mass.	1	Eisenman & Eleta, Inc.	1	*Kings Park State Hospital, N.Y.	1
*Burlington, N.J.	1	Fairfield, Pa.	1	*Lake City, Fla.	1
*Butler, Pa.	2	Fillmore, Cal.	1	Lakeland, N.J.	1
Cairo, N.Y.	1	Fishkill Village, N.Y.	1	*Lake View, N.Y.	1
Calumet City, Ill.	1	*Flint, Mich.	1	Lakewood, R.I.	1
*Cambridge, Mass.	2	Forrest City, Ark.	1	*Lake Worth, Fla.	1
*Camden, N.J.	3	*Fort Lauderdale, Fla.	1	LaFayette, Ga.	1
Cape May Point, N.J.	1	Fort Madison, Ia.	2	*LaJunta, Colo.	1

*Indicates Repeat Orders by well satisfied customers

AMERICAN-LAFRANCE

Branches

NEW YORK
PHILADELPHIA
PITTSBURGH
CHICAGO
ATLANTA
BALTIMORE
BOSTON

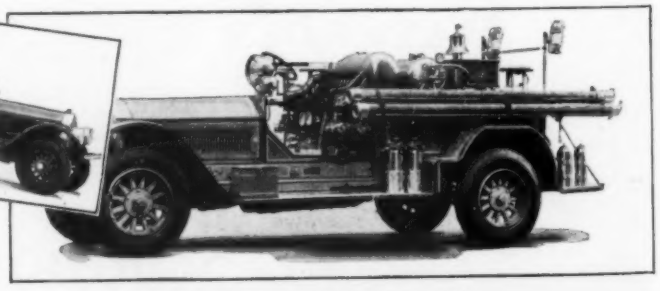
ELMIRA,

MONTREAL

CANADIAN FACTORY:

FIRE-CHIEFS' CONVENTION 1926

American La France Type "14" City Service Truck



American La France Type "75"

AMERICAN FIRE ENGINES LA FRANCE

Popularity is Founded Performance

It is significant that reorders make up 62.3% of the total volume of American-LaFrance sales for the period of January 1 to Aug. 31, 1926. Such a testimonial of proved satisfaction merits attention and study.

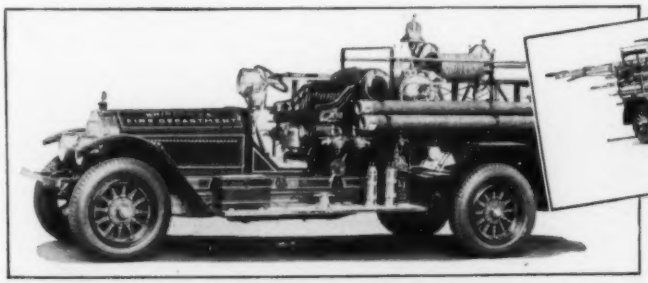
Lawrenceville, N.J.	1	North Bellmore, L.I.	2	*Schenectady, N.Y.	2
*Lewiston, Maine	1	North Milwaukee, Wis.	1	Seaside Heights, N.J.	1
Lewisburg, Tenn.	1	Oelwein, Ia.	1	*Seattle, Wash.	1
*London, Ont.	1	Ogontz, Pa.	1	*Selma, Ala.	1
*Los Angeles County, Cal.	4	Ouibdo, Columbia, S.A.	1	Seward, Pa.	1
Louisville, Miss.	1	Ojus, Fla.	1	*Shelby, N.C.	1
*Lynchburg, Va.	2	Okura & Company (Export)	1	Shrewsbury, Mass.	1
Manchester, Vt.	1	Paola, Kans.	1	Snow Hill, Md.	1
Manizales, Columbia, S.A.	2	*Patchogue, N.Y.	1	*Somerset, Pa.	1
*Maplewood, N.J.	1	*Pennington, N.J.	1	Somersworth, N.H.	1
Marieville, R.I.	1	Pharr, Tex.	1	*So. Jacksonville, Fla.	1
Marion, Ky.	1	*Philadelphia, Pa.	15	South Miami, Fla.	1
McMinnville, Tenn.	1	*Pine Brook, N.J.	2	*South Norfolk, Va.	1
Medford, N.J.	1	Pleasantview, R.I.	1	*Sulphur Springs, Fla.	1
*Miami, Fla.	4	*Point Grey, B.C.	2	*Sweetwater, Tex.	1
Miami Shores, Fla.	1	Pompano, Fla.	1	*Tarboro, N.C.	1
Middleburg, Pa.	1	*Pontiac, Mich.	3	Tarkio, Mo.	1
*Middletown, Pa.	1	*Portland, Maine	1	Temple, Pa.	1
Middletown Township, N.J.	1	Port Plain, N.Y.	1	*Toledo, Ohio	1
Milford, Mich.	1	*Pottsville, Pa.	1	Topton, Pa.	1
*Millburn, N.J.	1	*Princeton, N.J.	1	Troy, N.H.	1
Millbury, Mass.	1	*Providence, R.I.	2	*Tuxedo Park, N.Y.	1
Milton, Del.	1	Rasford, N.C.	1	*University Park, Tex.	1
*Milton, Mass.	1	*Raleigh, N.C.	1	Valley Falls, Kans.	1
Minden, La.	1	Raritan Township, N.J.	1	*Vancouver, B.C.	1
*Mishawaka, Ind.	1	Raymond, Wash.	1	Walnut Creek, Cal.	1
*Moncton, N.B.	1	*Reno, Nev.	1	Wampum, Pa.	1
*Monroe, Ga.	1	Ridgeville, Ind.	1	*Wausau, Wis.	1
*Monroe, La.	1	Riverdale, Ill.	1	Watervliet, N.Y.	5
*Monroe, N.C.	1	Riverdale, N.J.	1	*Waynesburg, Pa.	1
*Montreal, Can.	1	*Riverside, Cal.	2	*Waynesboro, Pa.	2
Moorehaven, Fla.	1	Robstown, Tex.	1	Waynesville, N.C.	1
*Morristown, Tenn.	1	*Rochester, N.Y.	1	*Waxahachie, Texas	1
*Mt. Carmel, Pa.	1	*Roseville, Cal.	1	*Webster Groves, Mo.	1
Murphy, N.C.	1	Royal Oak Township, Mich.	1	*Westbury, L.I.	1
Nassau, Bahamas	2	Saco, Maine	1	*West Hartford, Conn.	1
Neptune Township, N.J.	1	Safety Harbor, Fla.	1	West Manayunk, Pa.	1
*Newark, N.J. Underwriters P. Assn.	1	Safford, Ariz.	1	*West New York, N.J.	1
New London, N.H.	1	*St. Clair, Mich.	1	*White Plains, N.Y.	1
*Newport, R.I.	1	*St. Johnsburg, Vt.	1	*Wilmington, Del.	1
Newportville, Pa.	1	*Salisbury, Md.	1	*Wilson, N.C.	1
*New Rochelle, N.Y.	1	*San Antonio, Texas	1	Windham, N.Y.	1
New Smyrna, Fla.	1	*San Francisco, Cal.	1	Winlock, Wash.	1
*Newton, Mass.	1	*San Marcos, Tex.	1	*Winnetka, Ills.	1
*New York, N.Y.	20	San Rafael, Cal.	1	Winslow, Ariz.	1
*New York State Hospital, Binghamton, N.Y.	1	*Sarnia, Ont.	1	*Woodbridge, N.J.	1
		*Saskatoon, Sask.	1	Woodside, Cal.	1
				*York, Pa.	2

FIRE ENGINE COMPANY, INC.

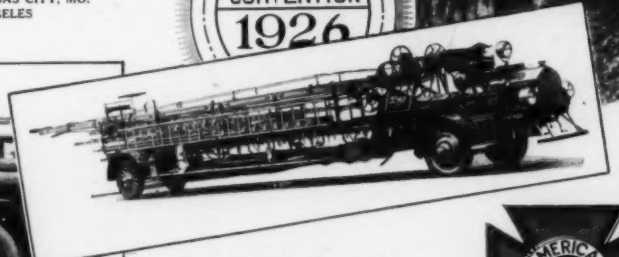
N. Y.

Branches

DALLAS
DENVER
SAN FRANCISCO
PORTLAND
LOS ANGELES
KANSAS CITY, MO.
MINNEAPOLIS
VANCOUVER
TORONTO, ONT.



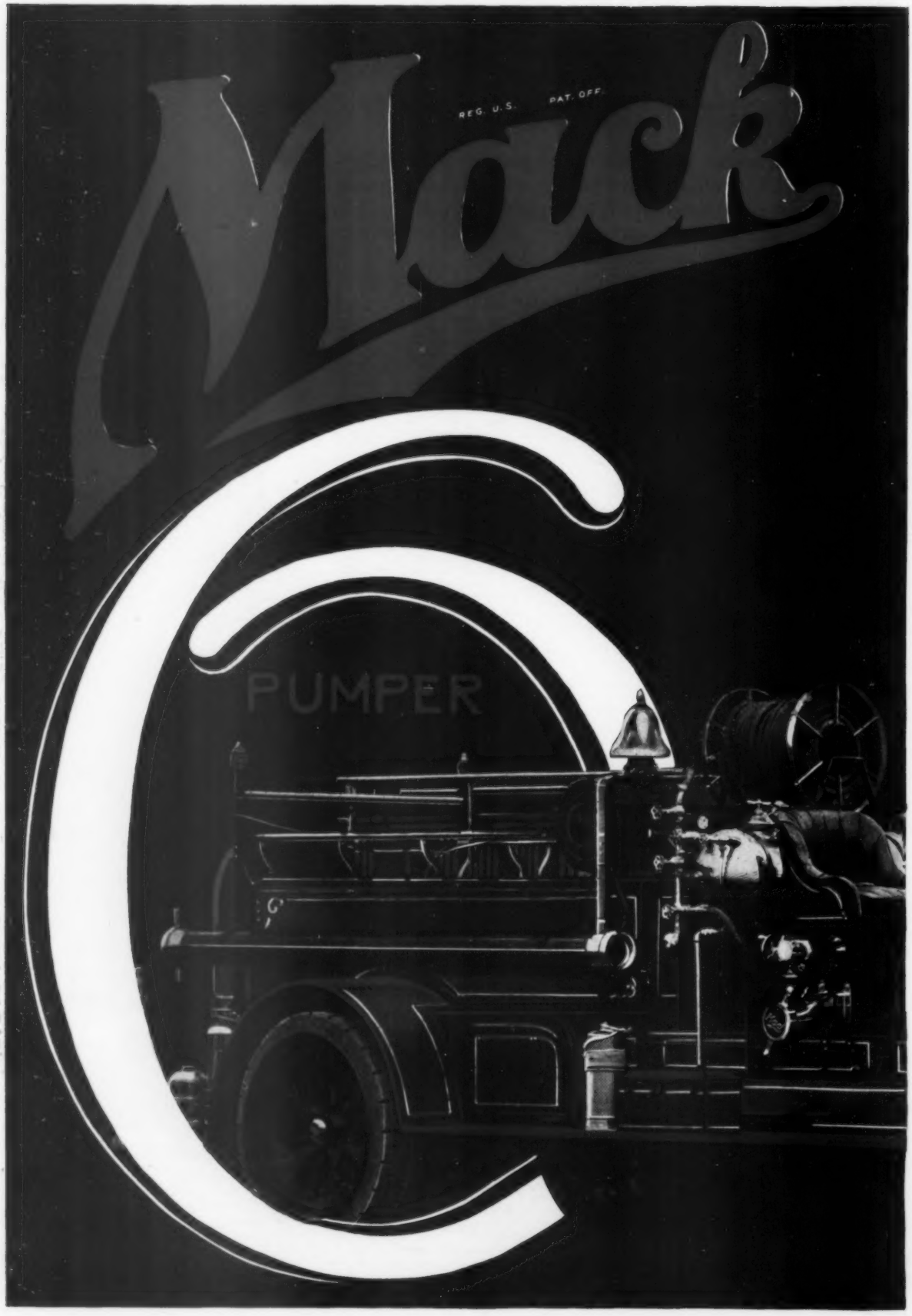
American-LaFrance Type "12"



Type 31-"75" Aerial Truck

FIRE-CHIEFS' CONVENTION 1926

AMERICAN LA FRANCE FIRE ENGINES


Mack
REG. U.S. PAT. OFF.
PUMPER

Six Cylinder Fire Apparatus

Result of The Underwriter's Official Test

AT a recent 12 hour official test conducted by engineers of the National Board of Fire Underwriters, a Mack model "AP-2"—6 cylinder combination pumper and hose wagon showed the following results:

Conditions of test: Tested at draft—lift 8 ft.

1st Test: Duration 6 hours, 1070 gallons per minute at 130 lbs. net pump pressure.

2nd Test: Duration 3 hours, 537 gallons per minute at 208 lbs. net pump pressure.

3rd Test: Duration 3 hours, 369 gallons per minute at 258 lbs. net pump pressure.

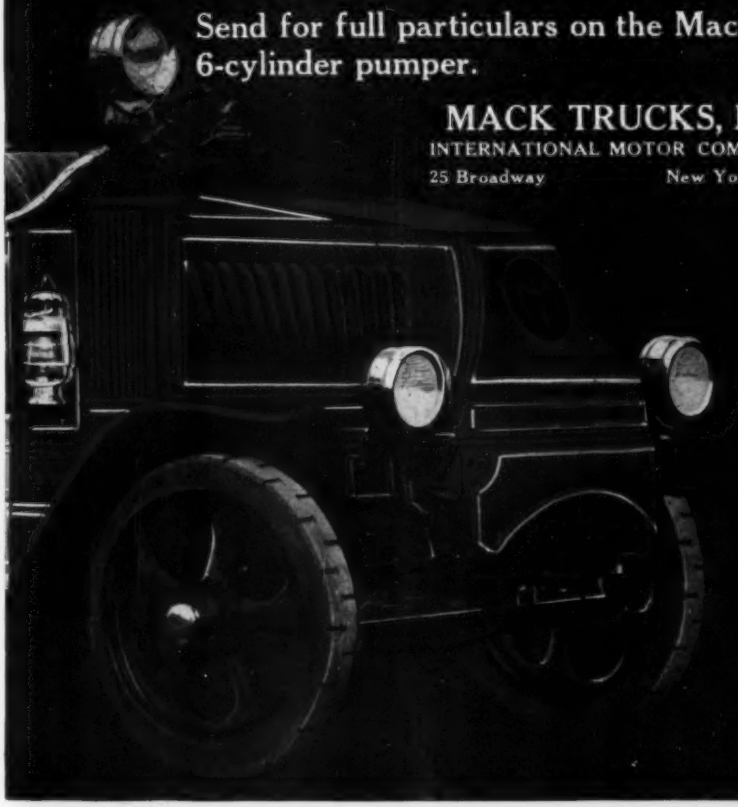
Remarks: Operation and Delivery satisfactory.

Mack 6-cylinder pumpers are furnished in capacities of 600, 700, 750, 800, 900, and 1000 gallons.

MACK Fire Fighting equipment has a background of more than a quarter century of practical experience and resources exceeding 50 million dollars—an excellent assurance that your investment will be protected and properly serviced.

Send for full particulars on the Mack line, including the 6-cylinder pumper.

MACK TRUCKS, Inc.
INTERNATIONAL MOTOR COMPANY
25 Broadway New York City



One hundred and nine direct Mack factory branches operate under the titles of "Mack-International Motor Truck Corporation," "Mack Motor Truck Company," or "Mack Trucks of Canada, Ltd."

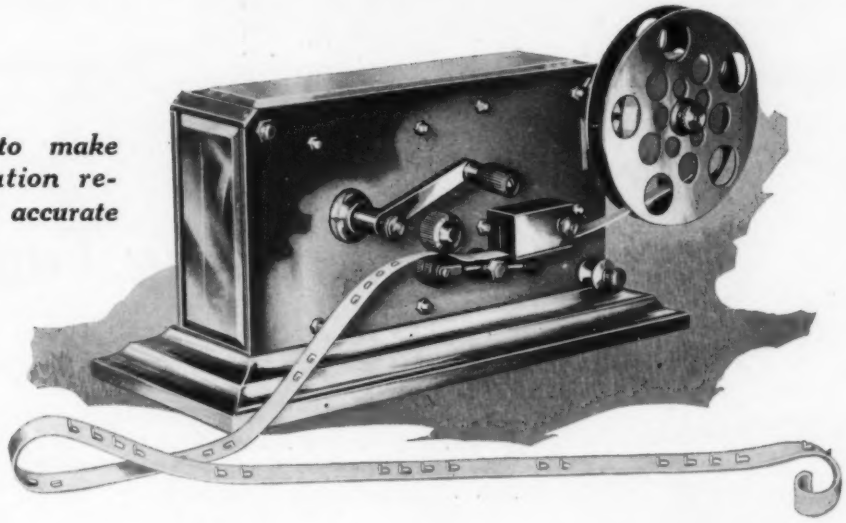
Check the six essential requirements of any fire hydrant with Darling's important points

1. **Ample Water Supply**—Darling's large barrel delivers the water at the nozzles at appoximately the same pressure as at the mains. ✓
2. **Rugged Construction**—Amply strong to safely withstand abuse incident to general fire service purposes and skidding automobiles. ✓
3. **Non-Freezing**—Quick drainage, non-clogging, dependable operation and automatic in action. ✓
4. **Compression Valve**—Accidental breaking of barrel or bending of stem only draws the valve tighter—no leaks—no floods. Closes with the pressure. ✓
5. **Minimum Maintenance**—Minimum attention to maintain in operative condition and with all parts accessible through top and interchangeable. ✓
6. **Adaptability to Installation Conditions**—The Darling Extension Section is only part required to raise hydrant and nozzles can be pointed in any desired position. ✓

DARLING VALVE & MANUFACTURING CO.
Williamsport, Pa.
New York Chicago Oklahoma City Houston

DARLING
FIRE HYDRANTS

Simplified—to make Central Station records more accurate



The New GARL Signal Register

Here is another GARL improvement that simplifies the business of fire alarm signalling. Like the GARL signal box, it makes any system more dependable.

This new GARL register has the following important advantages:

1st—The spring which controls the flow of tape is long and heavy so one winding will register forty full alarms.

2nd—The paper reel is made so every part is free running. No chance to bind.

3rd—The punch cuts with very slight pressure so constant sharpening is unnecessary. By loosening one screw punch blade can be removed.

4th—The record of signals is made by punch cutting a "U" shape or half circle. The paper from this cut being automatically bent back, it is impossible to read the recorded signals backwards.

5th—Accessibility. By a twist of a thumb screw the left hand side of register can be removed so adjustments may be easily and quickly made.

All these features are exclusive with the GARL register. It can be furnished for open or closed circuits and will add greatly to the efficiency and dependability of any signal system.

THE GARL SIGNAL COMPANY

AKRON, OHIO

GARL Fire Alarm boxes in addition to being attractive and storm proof, have the following outstanding advantages.

1st—Simplest possible construction.

2nd—Absolutely non-corrosive mercury contacts.

3rd—Telephone connection with headquarters from every signal box.

4th—No complications in cross-signals. Two boxes pulled on same circuit easily located.

Send us your requests for estimates.

A RELIABLE FIRE ALARM SYSTEM MEANS LOWER FIRE LOSSES

Ocean-Going Tugs For Instance

OCEAN-GOING Tugs—the Bulldog of boats—are following the trend of Liners and other ships toward conversion from steam to Diesel Drive.

In the selection of pumps for Tug service—the chief consideration is economy of space and weight, and high pump efficiency.

The spectacular success of the Northern Rotary Pump in the motor Fire Apparatus field—where the compactness, light weight and high efficiency of the Northern has been widely known for over 10 years—made it the natural choice of the Tug builder for all pumping services. In N. Y. C. R. R. Tugs No. 21 and No. 22—and in a number of other Diesel Tugs or Motor Tugs—four Northern Pumps hooked together in tandem take care of all the pumping requirements—and occupy less space and weigh less than any other pumps of equal capacity. The services are fuel oil transfer, Bilge and Sanitary, hydraulic steering—and fire.

The most prominent marine installation of Northern Rotary Fire Pumps is on the Leviathan, the greatest ship in the world. She is an oil burner—and a foam system guards against oil fires. Four Northern Rotaries are now completing their 4th year at this post. You need the Northern Rotary in your Fire Department. You can get it from any of 13 manufacturers of Fire Apparatus in the U. S.

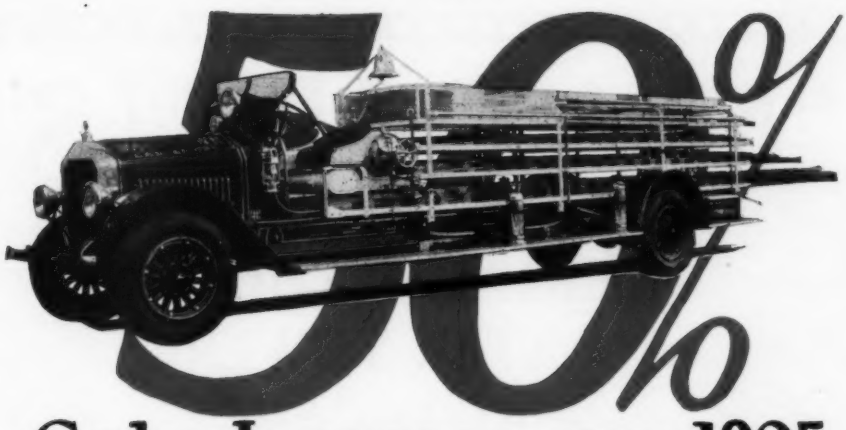
You cannot afford to buy any fire pump without first knowing all about the NORTHERN. Send for bulletins.

NORTHERN ROTARY PUMPS

"MORE GALLONS PER HORSE POWER"

NORTHERN FIRE APPARATUS CO.

902—18th Ave. N. E.
MINNEAPOLIS, MINN.



50%

Sales Increase over 1925—

Proves MAXIM Equipment Leads in Fire Fighting Service—

THIS 50% sales increase is sufficient evidence to prove that MAXIM equipment meets not only the requirements of fire fighters, but that it is giving the service demanded of such equipment.

MAXIM dependable equipment is specially designed and carefully manufactured by an organization of men who have devoted the best years of their lives designing, building and perfecting fire fighting equipment that serves the fire fighter and municipality in the most efficient manner possible.

The ladder truck illustrated above is a new model M.H.L. 6 Cylinder Double Bank City Service Ladder Truck recently delivered to Chief O'Hearn of the Watertown Fire Department, Watertown, Mass. This latest type Double Bank Ladder Truck makes the fourth MAXIM apparatus that has been purchased by Watertown since 1915. This is another reason why MAXIM equipment is constantly growing in greater demand with fire departments who know its value and the efficient service it renders.

MAXIM MOTOR COMPANY

MAXIM

MAXIM MOTOR COMPANY

Middleboro, Mass.

MAGIRUS

combines an

AERIAL LADDER
WATER TOWER
FIRE ESCAPE

in ONE fire apparatus!

MAGIRUS Aerials and Water Towers have been supplied to or are in order for:

Buenos Aires—Argentina
Pernambuco—Brazil
Panama City—Panama
Santiago—Chile
Valparaiso—Chile
Montevideo—Uruguay
Melbourne—Australia
Singapore—Str. Settlement
Saigon—French Indo China
Dairen—Manchuria
Hankow—China
Shanghai—China
Tokio—Japan
Alexandria—Egypt
Cape Town, U. of S. Africa
Johannesburg, U. of S. Afr.
Pretoria, U. of S. Africa
Penang—India
Bilbao—Spain
Stockholm—Sweden
Goeteborg—Sweden
Zuerich—Switzerland
St. Gallen—Switzerland
etc. etc. etc.

SEE where to direct your streams and cut down your water damage!

MAGIRUS Aerials and Water Towers have been supplied to or are in order for:

London—England
Belfast—Ireland
Dublin—Ireland
Cardiff—Wales
Glasgow—Scotland
Paris—France
Rheims—France
Brussels—Belgium
Aarhus—Denmark
Helsinki—Finland
Berlin—Germany
Hamburg—Germany
Budapest—Hungary
Naples—Italy
Riga—Lativa
Utrecht—Netherland
Stavanger—Norway
Warsaw—Poland
Lisbon—Portugal
Bukarest—Rumania
Moskow—Russia
Leningrad—Russia
Tiflis—Russia
etc. etc. etc.

100 ft. MAGIRUS Aerial; 31′ 5″ over-all!
85 ft. MAGIRUS Aerial; 27′ 4″ over-all!

AN AERIAL LADDER and WATER TOWER for Congested Traffic Districts, Narrow Streets, Alleys and Yards! Take a MAGIRUS Aerial anywhere you can take a pumper!

The only Aerial in America DRIVEN and OPERATED by ONE MAN!

Equipped with PLUMBING ARRANGEMENT for use on uneven ground!

THOUSANDS of MAGIRUS LADDERS in Service throughout the World!

AMERICAN MAGIRUS FIRE APPLIANCE CO., INC.

4243 Broadway, Indianapolis, Ind.

New York, N. Y. **Newark, N. J.**

Be Sure That Your New Badges Are

BRAXMAR

No. 929-F

No. 862-F

No. 899-F

Braxmar Badges

Have been the recognized standard in fire department circles ever since the

establishment of this pioneer company in 1879 — 45 years of conscientious service to the field. Our friends are everywhere — we have equipped departments from coast to coast.

More than 900 Designs

are available for your selection in gold, silver, gold-filled, gold plate, nickel, etc., for fire departments, police and other public officials and employees.

Be sure to have our latest illustrated catalog on hand, and write for prices on your department's requirements, both on individual badges and larger lots.

"Buy Braxmar—Better Badges"

C. G. BRAXMAR CO.

242 West 55th St., New York
(Formerly 10 Maiden Lane)

Kelly Kat tires safeguard engines and men.

Speed in answering alarms must be maintained despite road conditions. Over cobblestones, across railroad tracks and along poorly paved streets the more delicate parts of the engine receive terrific punishment from the constant pounding of the uneven road surface unless your trucks are properly cushioned.

Kelly Kats give 50% more cushioning. They absorb the jolts and jars that pass right through ordinary solid tires. They prolong the life of your equipment by protecting the engine from being pounded into the repair shop.

The side-vent construction, originated and perfected by Kelly, gives Kelly Kats a grip on any kind of road surface. On muddy, slimy roads or smooth, slippery pavements the driver of a Kat-equipped truck has perfect control at all times.

With Kelly Kats maximum speed may be maintained on roads where ordinary solid tires would slip and slide. Kelly Kats hold the road so that both firemen and the public are protected from unnecessary danger.

KELLY-SPRINGFIELD TIRE CO.

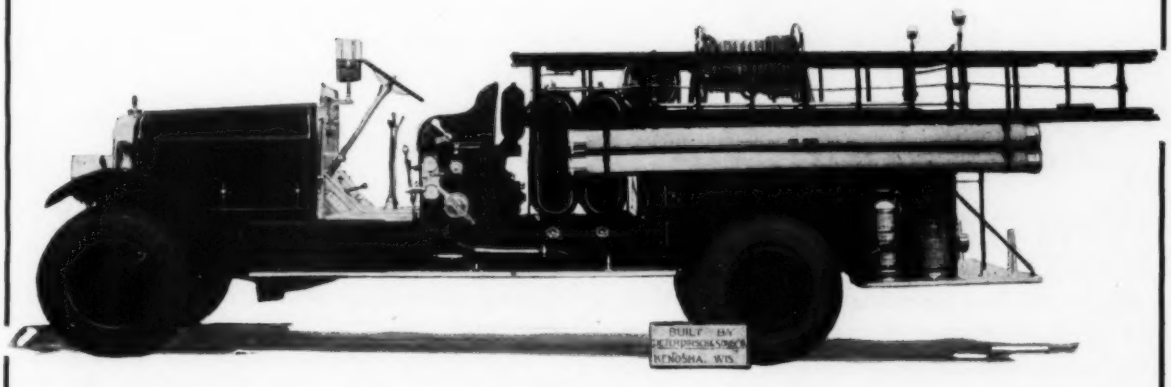
250 West 57th Street New York, N. Y.

Because of the protection afforded to men and machines it is not surprising that many fire departments specify that all new equipment must come through on Kelly Kats.

ANNOUNCING!

Our Line of "Pirsch" Built Pumpers:

"Pirsch-Special" 500-Gallon Pumper
"Pirsch-Intermediate" 600-Gallon Pumper
"Pirsch-Standard" 750-Gallon Pumper



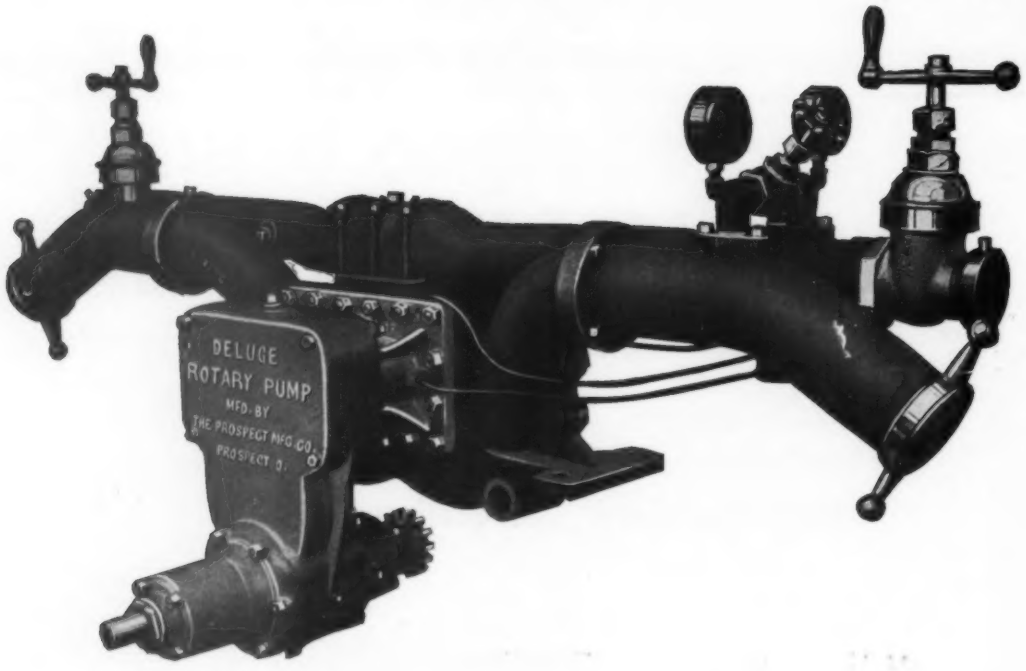
These machines are built "under our own roof" of the best materials obtainable and are sold at prices representing honest value, which will give many communities high-grade fire apparatus at cost within reason.

The motors are of sufficient horsepower to insure at least 20% reserve at all standard capacity and pressure tests. The "Pirsch-Standard" 750-Gallon Pumper has actually pumped 1,020 gallons of water from suction at 120 lbs. pump pressure. *Our ratings are all very conservative and at low motor speeds.*

These three models also furnished equipped as Ladder Trucks, Combination Chemical and Hose Cars, Squad Cars, etc. Either Soda and Acid Chemical Tanks, "Pirsch" Foam Tanks or Booster Tanks supplied.

For Further Information, Write

PETER PIRSCH & SONS CO.
KENOSHA, WISC. 11 MOORE ST., NEW YORK, N. Y.



The Pump that has put "Deluge" ten years ahead of other equipment

We're not just boasting when we say this. The "Deluge Rotary Pump" has raised the standard which others must follow in building fire fighting equipment to meet the requirements of the discriminating buyer.

No longer is a Rotary Fire Pump giving one or two years efficient service, good enough.

"Deluge" pumps are built with long life and efficient service a distinct part of their design. The *all-bronze interior* makes "Deluge" rust and corrosion proof. *Adjustable impeller shoes* and pump heads permit taking up any appreciable wear. Special alloy bronze impellers reduce this wear to minimum.

"Deluge" Pumps are equipped with Alemite Oiling Systems, permitting a quick and thorough oiling of all moving surfaces.

If you are in the market for fire fighting equipment, look into "Deluge" dependability and long life.

Complete Pumper and Chemical Combinations on any Standard Truck Chassis or the Special Master Fire Fighter Chassis. Let us send you photos and details.

The Prospect Fire Engine Co.

Prospect, Ohio

"Fortify for Fire Fighting"

If you are interested in selling America's Finest Fire Equipment, we still have some territory in which we desire to establish a permanent agency. Write.

Chief Boyd *says*

*"I heartily recommend "**Shuredry**" tarpaulins to every fire chief in this country. They are waterproof, not affected by the weather, easy to handle, and altogether the most satisfactory covers we have ever used."*

Supt. Townsend *says*

"These covers (Shuredry) must be of same specifications as the ones I received from you last year. Those covers have been put thru every kind of a test possible in this business and I have found them very satisfactory."

Here are two outstanding figures,—one from Knoxville and the other from St. Paul,—both well known to the fire-fighters of America, and each stating facts that deserve your thoughtful consideration.

"Shuredry" Salvage Covers are much lighter than rubber, cost far less, are waterproof, do not crack where folded, making them ideal for salvage work.

Write for Samples and Prices

Fulton Bag & Cotton Mills

Atlanta, Brooklyn *Manufacturers since* 1870 **Minneapolis, St. Louis**

New Orleans, Dallas

Shuredry

SALVAGE COVERS

JOHNS-MANVILLE
Asbestos Shingles

Insurance underwriters lower rates for FIRESAFE roofs

THE insurance underwriter no longer calmly watches the public build as they please. He actively advocates fire-safe roofs and offers inducements in lower rates for safe roofing construction.

His warnings added to those of other fire prevention authorities are having their effect. The public is demanding more asbestos roofing than ever.

JOHNS-MANVILLE Inc., 292 Madison Ave., at 41st St., N.Y.C.
Branches in all large cities
For Canada: CANADIAN JOHNS-MANVILLE CO., Ltd., Toronto

Asbestos
INSULATION
BRAKE LININGS
ROOFINGS
PACKINGS
CEMENTS

SALVAGE COVERS THAT *MINIMIZE* FIRE LOSSES

There are times when Clifton Salvage Covers may mean reducing fire and water losses by thousands of dollars.

An investment in Clifton Salvage Covers may pay for itself at the first fire they serve. Clifton Salvage Covers are designed of such thickness and weight as to be light enough to be handled quickly and rigid enough for the most strenuous service.

They are rubberized on both sides with a heavy coating of tough rubber, and the heavy duck used gives them the maximum of tensile strength. The extra heavy coating of rubber provides the armor which has made Clifton Covers the most serviceable and enduring, and which is one of the many reasons why they are preferred over all other covers.

Clifton Covers are built to stand the heaviest abuse, and should be specified by all fire departments interested in the best, at the least possible investment cost.

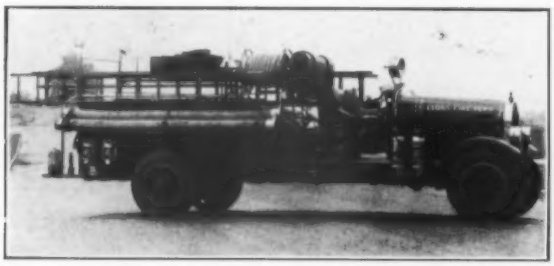
Ask any fire chief who has used Clifton Salvage Covers and he will tell you why he has forgotten about all the others.

May we send you further facts?

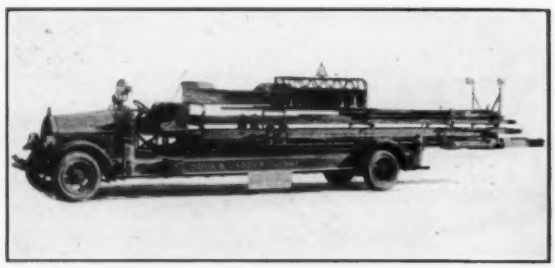
CLIFTON MANUFACTURING COMPANY

JAMAICA PLAIN BOSTON, MASS.

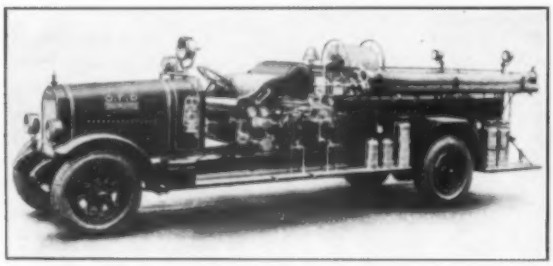
SELDEN FIRE TRUCKS
FOR DEPENDABLE SERVICE



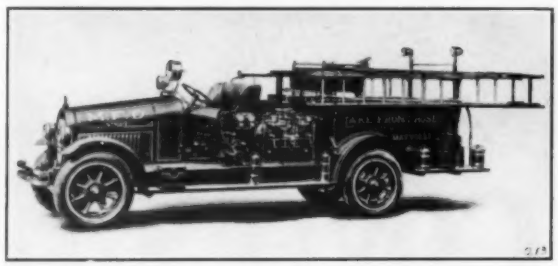
Roadmaster 600-Gal. Pumper in service at Lyons, N. Y.



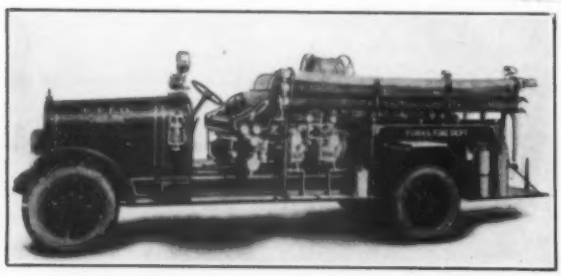
Lyons also has a *Pacemaker* on which a Hook and Ladder is installed



Roadmaster Triple Combination apparatus used in Ontario, N. Y.

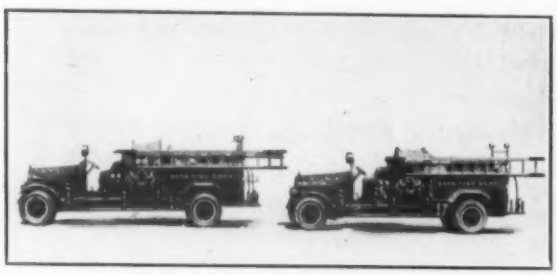


Lake Front Hose Co. at Mayville have a *Pacemaker* Triple apparatus

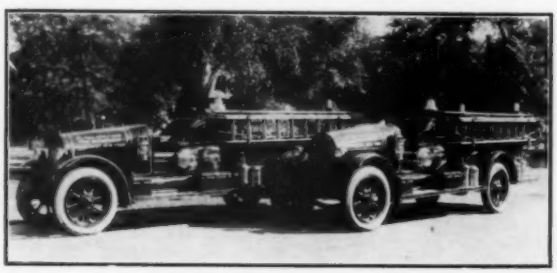


Forks Fire Department operates a *Roadmaster* Fire Truck

Cohocton Fire Department uses a *Pacemaker* Pumper



Two *Pacemakers* in service at Bath, N. Y.

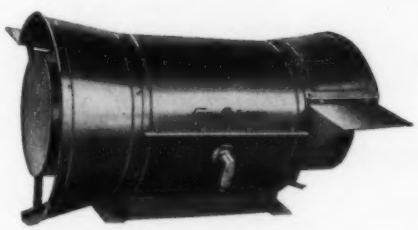


Two *Pacemakers* in service at Irondequoit, N. Y.

6-Cyl Motors and Heavy-Duty Transmissions

SELDEN TRUCK CORPORATION, Rochester, N. Y.

3 IN 10 and 9 OF 10



Better than 3 of ***every*** 10 towns or cities of the United States are equipped with siren fire alarm systems. And in these completely protected towns, 9 out of 10 times you will find that the sirens used are Federals.

A Federal ***never*** fails. The workmanship—the motors used—the complete standardization and uniformity of all parts—preclude trouble. It is the only siren which DIRECTS sound. And the power of its mighty penetrating scream offers a completeness of protection that you need as much as your neighbors.

Have you the specifications of our ***NEW*** unit?

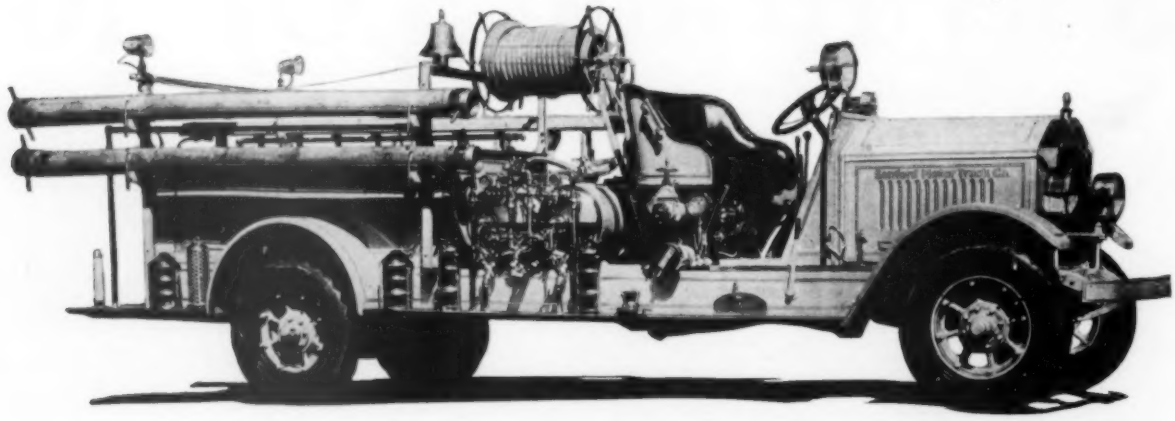
Federal Electric Company

8700 South State Street
CHICAGO, ILLINOIS

FEDERAL

Sanford

500 GAL. TRIPLE
PUMP, CHEMICAL and HOSE TRUCK



THE GREATEST VALUE IN AMERICA—INVESTIGATE BEFORE YOU BUY.

Triple Combinations; Combination Chemical and Hose Trucks; Straight Chemical and City Service Trucks.

Write for Information.

SANFORD MOTOR TRUCK COMPANY
SYRACUSE, N. Y.

You, Too, Can Perhaps Use A.D.T. Services to Cut Down Fire Loss and Water Damage

From Coast to Coast and from the Border to the Gulf there's a net work of thousands of telegraph lines and sprinkler systems under the control of the American District Telegraph Company protecting over $20,000,000,000 worth of property against the ravages of fire.

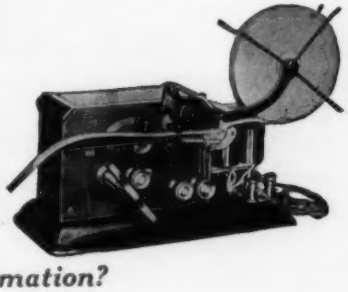
Local offices of the American District Telegraph Company are cooperating with Fire Chiefs and Industrial Fire Officials in cities everywhere by providing an effective system of Automatic Sprinkler Supervision, Fire Alarm Service and Night Watchman Supervision that is helping materially to cut down fire loss and water damage throughout the country.

During the year 1925 the fire and water loss of property protected by A. D. T. Fire Alarm Service was only 8/100 of 1% of the value of property so protected. The fire and water loss of property protected by A. D. T. Sprinkler Supervisory Service was reduced to the remarkable low percentage of only 63/1000 of 1% of the value of property so protected.

Are *you* using A. D. T. twenty-four hours a day Fire Protective Services to cut down *your* fire losses? Do *you* know how *your* local American District Telegraph Company office can be of practical and economical service to *you* in connection with *your* work? If not, write us and we shall be glad to send complete information without any obligation.

We Help Fire Chiefs to Prevent Small Fires from Becoming Big Ones

On the right is shown the A. D. T. night watchman and fire alarm box that is installed throughout A. D. T. protected property. On the left is the registering instrument which is installed in the local A. D. T. office. All boxes together with Automatic Sprinkler Supervisory Instruments are electrically connected with the registering machine. This system provides protection that is at all times positive in its relentless watchfulness.



May we send Complete Information?

CONTROLLED COMPANIES

American District Telegraph Co.

Executive Offices, 183 Varick St.

New York City

One of the outstanding developments by Firestone Research Engineers is the process of dipping the cords in a rubber solution which impregnates and insulates every fiber of every cord. This adds strength to the cords and reduces to a minimum internal friction and heat so destructive to tire life.

The Gum-Dipping of the cords made it possible for Firestone to develop the Gum-Dipped Pneumatic for fire apparatus which gives to fire departments not only extra safety and protection at fast speeds while answering alarms, but a definite dollars-and-cents saving in increased mileage.

In the battle of tires on race tracks—in the day-in and day-out service of the largest truck, bus and taxi-cab fleets—on the wheels of heavy fire apparatus—on the cars of hundreds of thousands of motorists everywhere — Gum-Dipping has demonstrated its supremacy in greater economy, safety and comfort.

Equip your fire fighting apparatus with Firestone Gum-Dipped Pneumatics. They are built as only Firestone can build them and will perform as only Gum-Dipped Tires can perform. See the nearest Firestone Dealer.

The Mark of Quality

MOST MILES PER DOLLAR

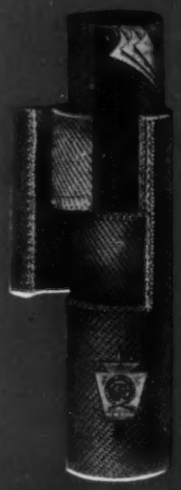
AMERICANS SHOULD PRODUCE THEIR OWN RUBBER . Harvey S. Firestone

An Unusual Advertisement —worth reading.

An Unusual Hose —worth using.

FIRE HOSE

MADE LIKE AN AUTOMOBILE TIRE *IN TWO PARTS* INNER TUBE *and* OUTER JACKET



"Fabric" Features:

Separable Inner Tube

—lasts longer than same quality tube cemented to the fabric because it is in complete repose when hose is not in service.

Will Not Slide or Buckle

—the diameter of the tube is reinforced in such a way as to eliminate it.

"Fabric" Features:

A Wax and Gum

treated fabric jacket—absolutely waterproofed by a special method. Cannot mildew or rot.

Other New Features—

The strands are "cabled" by a new process. The Durability of Fabric Hose is phenomenal.

FABRIC FIRE HOSE CO.
NEW YORK

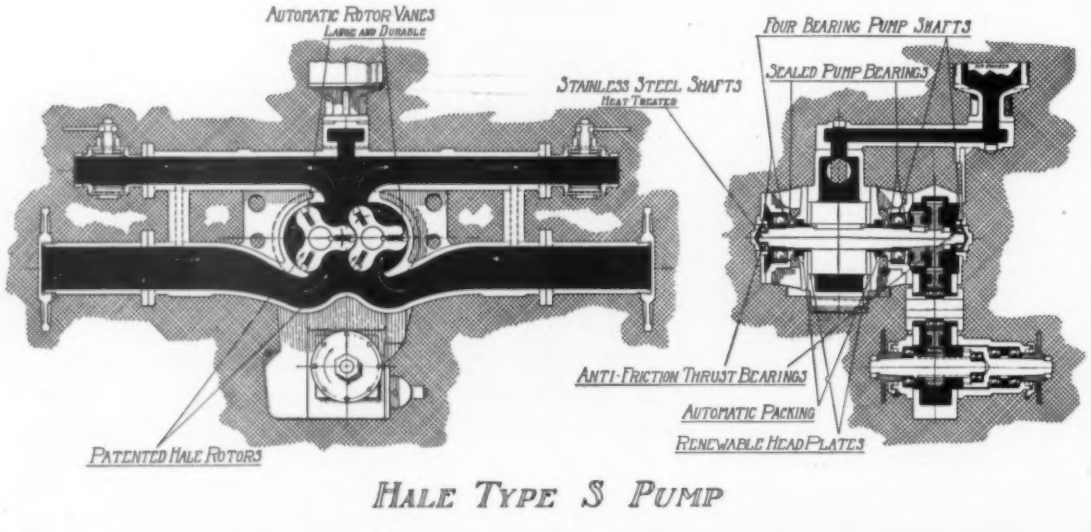
HOSE facts of interest to every buyer of fire hose will be found in the interesting illustrated booklet issued by the Fabric Fire Hose Co., New York, telling not only why Fabric Wax and Para Gum Treated Fire Hose is the most practical and efficient hose for you to use, but explaining the actual details of its manufacture so that you know just what you are buying and why it is superior. Write for it—Fabric Fire Hose Co., 127 Duane St., New York.

New and Better Hale Fire Pumps

ANNOUNCING **improvements in design and construction,** which place the **HALE DREADNAUGHT MODEL** far ahead of anything which has previously been done in rotary pump work. Actual tests have proven definitely the real advantage and reliability of each new feature.

The Ideal Pump for Fire Engine Work

We offer these new models with the firm belief that their efficiency is higher and their effective life longer than any other rotary pump.



HALE TYPE S PUMP

The exclusive advantages indicated in the illustration above will be taken up in more detail in subsequent issues.

Hale Fire Pump Co., Inc.

Conshohocken
Penna.

C. & A. R. R. Waukesha Engined Versare Westinghouse Gas Electric Eight Wheel Bus racing the C. & A. DeLuxe Lincoln Limited

An Epoch Arrives

The Covered Wagon, The Iron Horse, and the Steam Pumper have each had their day. This bus heralds a new epoch in motor vehicle and gas engine development. Standard Six cylinder "Ricardo Head" Engines made the design and operation of this 72 passenger 30,000 pound bus possible. High power and uninterrupted service at full load were required.

Pumper Engines must have these same characteristics. Waukesha six cylinder engines are built in two sizes—one suitable for 500-gallon pumpers and the other for 750-gallon pumpers. Milwaukee has chosen them for their new pumpers. They have passed every Underwriter's 12-Hour Test with ease and six different manufacturers are now using them. Write for further information giving full description of them, or see these engines at the 54th Annual Convention of the International Association of Fire Engineers, space No. 29, New Orleans Exposition, Oct. 19 to 22.

FIRE EQUIPMENT DIVISION

WAUKESHA MOTOR COMPANY
Waukesha Wisconsin

Builders of Heavy Duty Engines for Over Twenty Years

first due . . .

For the company "first due" at a fire, it's down the pole and away to battle at the sound of alarm. Stretching in its lines, the gallant company proceeds to win another conflict against the fire fiend and returns home content with a deed well done.

The battle of the insurance companies to insure property through the efforts of their local agents does not thrill like the exciting and hazardous operations of the firemen. But it's just as important. As you are "first due" at a fire, insurance is "first due" before fire starts.

Insurance begins where fire prevention leaves off and one without the other means incomplete protection. From coast to coast the "America Fore" Group of Fire Insurance Companies is cooperating with you in your fight against the destruction of life and property by fire.

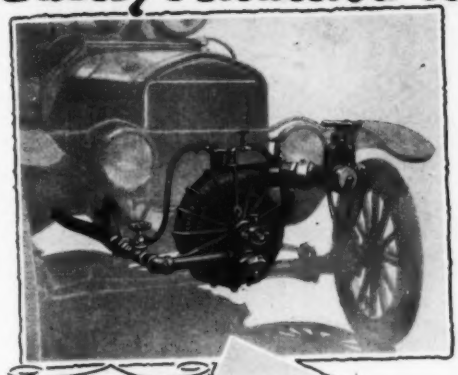
AMERICAN EAGLE — FIDELITY-PHENIX
The CONTINENTAL — FIRST AMERICAN
INCORPORATED 1923

FIRE INSURANCE COMPANIES
Eighty Maiden Lane, New York, N.Y.

ERNEST STURM, Chairman of the Boards
PAUL L. HAID, President

THE "AMERICA FORE" GROUP OF FIRE INSURANCE COMPANIES

BARTON
Portable Fire Pumps
Patented
Easily Attached to Ford & other Cars or Trucks



Barton Portable Fire Pump on Ford Car

Barton Portable Fire Pump in Action as Booster

Barton Portable Fire Pump Attached to Reo Speed Wagon

This Portable Fire Pump is the ideal pumping unit for small towns, villages or townships where Simplicity, Low Price, and Service count. Our reputation in building all types of pumps for more than thirty years leaves no room for doubt as to our ability to build a fire pump of the highest quality and efficiency. We believe this is the first fire pump at a price consistent with the other equipment on which it is to be used. Every small town or village can now have ADEQUATE FIRE PROTECTION AT LOW COST.

Outstanding Features of the Barton Portable Fire Pump

The Barton Portable Fire Pump is of the centrifugal type, is quickly and easily attached on the front of any car or truck using the power of the motor by means of a power-take-off and will furnish abundant capacity from any source of water available. This is of utmost importance in all towns and villages having a limited water supply and no paid fire department. A patent AUTOMATIC PRIMER primes the pump in less than one minute and keeps it primed. All parts are easily accessible. The impeller is of the open type which will handle water containing sand, small pebbles or cinders without damage to the pump. The motor may be cranked without removing the pump from the car. It is easily and quickly drained, is always dry and cannot freeze in transit or in service.

Capacities

Dodge and Reo Speed Wagon

172 GP Min. through 1000 feet 2½" hose from suction.
392 GP Min. through two 1000 feet 2½" hose using 1" nozzles pumping from suction.
480 GP min. from 30 lb. hydrant pressure through two 1000 feet lines of 2½" hose using 1" nozzles.
533 GP Min. through two 1000 feet lines 2½" hose using 1¼" and one 1" nozzle.

Prices

Including suction hose, foot valve siamese discharge connections, primer and power take-offs complete ready to operate.

$450.00 for Ford cars and trucks.
$650 for Reo Speed Wagon, Dodge and other heavy trucks.

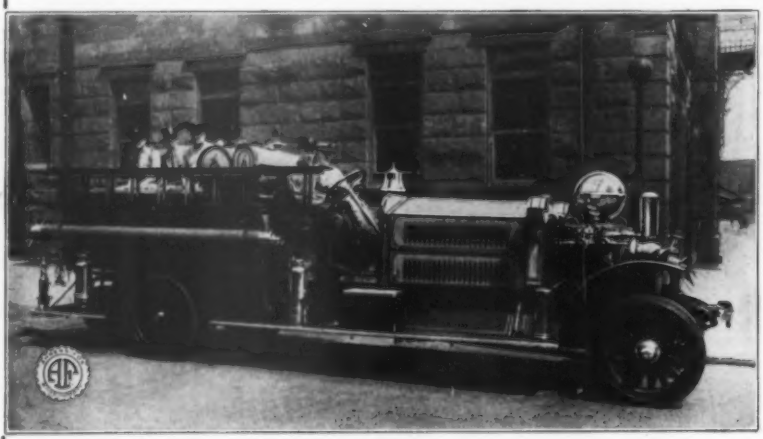
See Our Demonstration at the New Orleans Convention.
Write for Bulletin.

American Steam Pump Co.
Battle Creek, Michigan

At the I. A. F. E. Convention, New Orleans, La., October 19-20-21-22, 1926

EXHIBITING

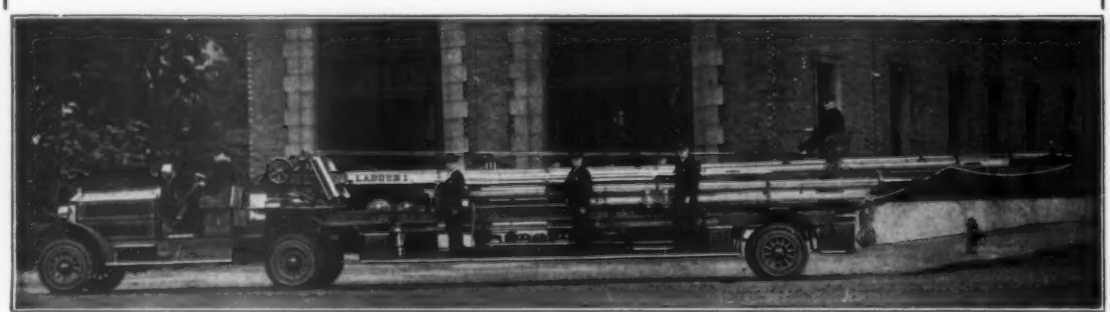
Giants of a Line that Meets Every Rational Fire Fighting Need



MODEL "P"
Pump Hose and Booster

Fourth Unit of this Type for CHIEF R. H. BOWKER, Passaic N.J.

Ahrens-Fox Aerial Truck—For Chief Eugene T. Ricker, Biddeford, Me.



Inspection is invited of an Exhibit which is really worth while.

Nothing Too Good for Fire Service and Only the Best Will Do.

The Ahrens-Fox Fire Engine Co.

"Builders of Quality Fire Apparatus"

Cincinnati

Eastern Representative
J. A. PRESCOTT
Fisk Bldg., New York

New England Representatives
CARLOW AUTO CO.,
Taunton, Mass.

Chicago Representative
HENRY R. EARLY
Planters Hotel, Chicago, Ill.

California Representatives, PACIFIC FIRE EXTINGUISHER CO., San Francisco, Cal.
Minneapolis Representatives, JOS. F. AUEL Company, 718 Builders' Exchange Bldg., Minneapolis, Minn.
Canadian Representatives, THE BICKLE FIRE ENGINE CO., Woodstock, Ontario
Pacific Northern Representatives, A. G. LONG CO., Portland, Ore.

The Journal of the Fire Protection Profession Since 1877

MEMBER
Audit Bureau of Circulations
Assoc. Business Papers, Inc.

FIRE ENGINEERING

A Consolidation of FIRE AND WATER ENGINEERING and THE FIRE ENGINEER

Published the 10th and 25th of each month

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Wonderful Progress!

IT is gratifying to be able to present this year to the International Association of Fire Engineers' delegates at New Orleans what we believe is unquestionably the finest issue of any fire magazine ever published,—the current number of FIRE ENGINEERING.

¶ Our present position has been won only through hard work, through the years, endeavoring always to be of the greatest practical service to the great fire protection profession which we represent; and we are not unmindful of the splendid cooperation that has always been forthcoming from the many of you who have helped to build up the standards!

¶ To one and all of you, whether at New Orleans or at home, we bring greetings and best wishes for the most successful year in the history of the Association! The work ahead that still remains to be done is still great; but with all of us moving forward, shoulder to shoulder, no obstacle will be too great. We pledge ourselves, through FIRE ENGINEERING, to do our utmost!

The Publishers

65% Specify Herculite Shells

Less than ten months have passed since the Herculite shell was first placed on the market, yet it is now being specified on 65% of the box orders received and each day brings further indication of an increase in this percentage.

This in itself speaks worlds for the new Herculite shell. It means that it has passed the rigid tests and investigations of many cities and has been found equal to all that has been said for it. The map above gives some indication of its widespread popularity.

The Herculite shell embodies the following important features that have already made it the choice of so many cities.

1. As strong as steel.
2. One-third the weight.
3. Uniform in size to two thousandths of an inch.
4. Improved conduit entrances.
5. Self restoring quick action door.
6. Baked enamel finish of brilliant red.

When ordering fire alarm boxes for new or replacement purposes specify Herculite shells. You can then rest assured that the box movements will have the best possible protection.

Bulletins sent upon request.

The Gamewell Company

Newton Upper Falls, Mass.

"A Box A Block"

FIRE ENGINEERING

(A Consolidation of FIRE AND WATER ENGINEERING and THE FIRE ENGINEER)

The Leading Journal of the Fire Protection Profession

VOLUME LXXIX OCTOBER 10, 1926 NUMBER 19

New Book of Rules for New York Department

To Take the Place of Those Issued in 1912— Many Changes Incorporated in Latest Revision

Reviewed by WM. JEROME DALY

FIRE Commissioner John J. Dorman of New York City has issued to the uniformed force of the department, a new book of rules and regulations.

The book was compiled and edited by Capt. John J. McCarthy of H. & L. Co. 43, detailed in charge of the Division of Public Assembly at Fire Headquarters. Under the direction of Fire Chief John Kenlon, Capt. McCarthy devoted twenty-one months of his spare time to the task of revising the 1912 edition of the book of rules.

John J. Dorman, Fire Commissioner, New York City.

To do this, he read, assembled and consolidated, 4,900 printed orders of the department, issued since August, 1912, at which time the previous edition of the book of rules was turned out by former Deputy Commissioner George W. Olvany and Capt. Edward T. Galloway of H. & L. Co. 25. Judge Olvany today is the leader of Tammany Hall and Capt. Galloway died three years ago. Capt. Galloway at the time he worked on the old book of rules was a member of the bar, but did not practice until after he retired from the service.

To Publish Book of Rules Serially

To enable readers of FIRE ENGINEERING to obtain the complete text of the new book of rules of the New York Fire Department, in view of the limited supply, and without unduly causing the New York department to part with so many copies of what is otherwise an expensive document to publish FIRE ENGINEERING through the courtesy of John Kenlon, Chief of Department, will publish serially in each succeeding issue, the complete book.

The new book reveals additional vacation time for company officers and firemen. The officers are increased from 21 to 23 days and the firemen from 16 to seventeen days. The reason for the difference in the increase is that the firemen in the past few years received an increase in vacation when the officers did not. This now evens the matter up somewhat.

Language Simple, Direct and Understandable

The new book has 323 sections as compared with 174 in the old book. It has a most complete index, enumerating 963 topics as against 731 in the former edition.

The language in the book is simple, direct and easily understandable to the rookie fireman. Each section conveys a single thought, hence the increase in the number of sections; no subjects are mixed.

The old phrase "officers and men" is eliminated. All hands are now referred to as "members." There is no such thing now as reporting to a "superior." The new expression is "superior in rank."

Synopsis of New Material in Book

Without entering into a lengthy discussion of the new features of the book, FIRE ENGINEERING is enabled to present here, a synopsis of the really new material in the book. For instance:

Chief John Kenlon, New York City.

Formations — Minute detail is given as to formations for parades, roll call, funerals, drills, exhibitions, etc. The book puts the department on a much higher military plane.

Traffic — Regulations will be observed by chauffeurs of spare apparatus and by apparatus going to or from the shops.

Fires—Do not enter a building without orders.

Instruction—The officer shall instruct for one hour on each 24 hour tour, in signals, administration, rules, etc., etc.

Newspapers—Only the Commanding Officer at the fire shall give any statement to the newspaper reporters present.

Housewatch—All hands below Lieutenant shall do Housewatch duty. The exceptions are probationary firemen and com-

pany district inspectors, who may be used as assistant housewatchmen. Pilots and marine engineers are also exempt.

Visitors—No visitors after 9 p.m. Unescorted women no further than the watch-desk.

Vacations—Twenty-three days for Company officers and 17 days for firemen. Vacations are earned after five months service.

Meals—Meals become operative 43 hours after the recall has been sounded. No more three meals, only two and one. No meals after 8 p. m.

Present for Duty—Members appearing in quarters while on leave or on off-tour, shall be considered "present for duty."

Theatres—There are 25 things firemen detailed shall do and among those they shall not do are "ask for favors at the box office" and "talking to the performers."

Umbrellas—Carrying them is not approved.

Turn-outs—May be carried on the apparatus if neatly folded and topped off with a fire helmet. Otherwise, off the apparatus when off duty.

Uniforms—New regulations. Also, no uniforms to be worn in places of public assembly, picnics, outings, parades, except with permission or in places of religious worship.

Platoons—In June, July and August the morning platoon changes at 8 a. m. instead of 9 p. m. to give members the advantage of daylight saving.

Housewatch—There are 24 points to be observed and 5 to be careful to avoid.

Conduct—There are 16 points to be observed and 44 points to be guarded against.

Dual Officers—The senior in the rank is the administrator of the division, battalion or company, when both are of equivalent title.

Inspections—Deputy Chiefs shall inspect the platoon on duty at the time the inspection is made.

District Inspection—Company officers are expected to devote four hours of one off platoon each week to inspecting buildings in the company district.

Alarm Boxes—From November to April the company shall inspect and oil all key slots, keep box handles free from snow and ice and report to the Dispatcher in charge any broken light globes or other defects.

Gas Cut Off—Once each month the company inspector shall inspect and keep oiled, the key slots of gas cut off switch boxes.

Ammonia Controls—Same as gas shut off switch boxes.

Traffic—Without depleting the normal strength of the company, a fireman shall be dropped and take police action against any motorist or driver denying the right of way or endangering the apparatus.

Legal—Processes by law, summonses, etc., are now handled by the Division Chief instead of the office of Chief of Department.

Lieutenants—The Lieutenant commands the platoon to which he is assigned and not the entire company.

Engineers—The engineer of the company is also the engineer of the company quarters from 7:30 a. m. to 8:30 p. m.

Housewatch—During the period of the recall the Housewatchman remains in quarters when the company rolls.

Beds—During the period of the recall, the commanding officer will make up a schedule of bed occupation, where there are not enough beds for all hands.

Drugs—No drugs or narcotics without permission of the Chief Medical Officer.

Intoxicants—Members shall not have nor allow to be brought into quarters any intoxicant or the ingredients used in the preparation thereof.

False Alarms—When arrests are made for false alarms, the Battalion Chief shall assign a member of the uniformed force to appear in court to prosecute.

Medical Officers—Will now make weekly reports of all of their department services or duties, to the Chief of Dept. through the channels of the Medical Office.

Cleaning Quarters—For the first time, the duty of cleaning and maintaining quarters and apparatus is definitely defined particularly as between which duty shall be performed by the day and the night platoons.

Reporting for Duty—In the absence of the company officer, the platoon reporting for duty and upon finding the company to be out of quarters the senior fireman will take command.

Building Violations—Members acting as Company District Inspectors shall not recommend or do any business for any firm or corporation, where violations are found to need remedying.

Sleeping—Members are not to go to bed before 8:30 p. m. nor remain there ofter 7:30 a. m., excepting for illness or from fatigue during the period of the recall.

Sidewalk—Members reporting at the hour for changing platoons are not to congregate on the sidewalk in front of quarters.

Resignation—Twenty-four hours' notice instead of five days.

Light Duty—Light duty is Housewatch, Messenger, House Cleaning or Detail to Public Assembly.

Inspector Killed in Fire Auto Smashup

W. B. Norton, fire inspector of Macon, Ga., was killed and two other members of the fire department were seriously injured on the morning of September 25, when the car used by the assistant chief turned over and crashed into a telephone pole. The injured are Asst. Chief Victor E. Armstrong, and his driver—the three men involved in the smashup were riding in the chief's car.

The inspector was riding in the rear and when the pole was struck, he was thrown out so that his head was forced against a brick wall. In addition to the fractured skull, he suffered from a broken leg and bruises; Assistant Chief Armstrong suffered from a broken rib and a collar bone and the driver received cuts all over his body.

The chief's car and a pumper were on the way in answer to a fire alarm and both of the machines left fire department headquarters at the same time. Both cars reached a certain street intersection at the same time but from different routes, and in order to avoid a collision, the driver of the chief's car turned in towards the front of the pumper. For some reason the car overturned and crashed into the pole.

The damage from the fire was slight—a quantity of coke on the fourth floor of a cold storage plant had caught on fire—the damage was less than $3,000. J. A. STULB.

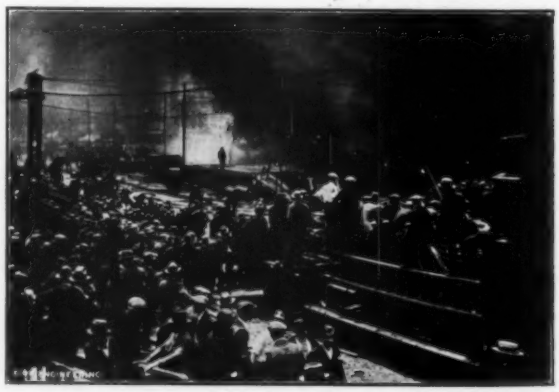
The Chief Has a Soft Job!

An interesting bit of copy has been prepared to acquaint the people of New Orleans, La., the convention city of the I. A. F. E., with the full importance of the duties of the fire chief. The Trumbull Electric Manufacturing Company tells the story in part as follows:

"The fire chief is supposed to know the city rulings, of which there are many; the public buildings, churches, schools, hotels, theatres, streets, railroads, location of all fire alarm boxes, nearest company responding to that alarm, etc., each of which is a study in itself.

"His work in many respects is a *thankless job* with very little consideration in turn for his efforts. He is criticized at a fire if it gets away from him, no consideration being given as to when the alarm was turned in and the *time lost* before the fire department was notified. If he saves the building, and the lives involved, he is a hero for a day, after which, the incident passes into history.

"If you think the fire chief's job is soft, why not trade with him? We consider our civic organizations — churches, lodges, theatres, business affairs—but, do we ever think of our fire chief?"



What Are the Police Doing?

Yes, that's the question. What are the police doing? ANSWER. Enjoying a good view of the fire. QUESTION. What is the public doing? ANSWER. Enjoying a good view of the fire through the courtesy of the Fire Department by utilizing a ladder truck shown in the foreground as a grandstand. NOTE: We wonder if this city ever loses any tools or appliances from their trucks.

New Orleans Ready for Chiefs' Convention

The City Famous for Southern Hospitality Prepares to Welcome the Visiting Chiefs—Description of Department

NEW ORLEANS, rich in the memories of ante-bellum days—the chanteys of the river boatmen—will surprise the visiting fire chiefs, especially those from the northern cities who have never been south, when they observe how the city is really modern and progressive. Towering skyscrapers, a large high value district, large and many docking facilities, and magnificent homes make a fire protection problem that is enough to keep any chief busy. John M. Evans, chief of the New Orleans fire department and host to the International Association of Fire Engineers, has an efficient department to cope with the problem of fire-fighting, and to further the modern practice of fire prevention.

Chief John M. Evans, Convention Host.

The department has a personnel of 626 of which 619 are on active fire duty. In addition to the major officers, there are fifty-five captains, fifty-eight lieutenants, 226 pipemen, seventy-three laddermen and sixty-two hosemen. The motor propelled apparatus consists of two 1,400 gallon pumpers, seven 900-gallon pumpers, six 750-gallon pumpers, twenty-three 600-gallon pumpers, two aerial hook and ladder trucks, nine city service trucks, four hose wagons, 1 squad wagon, two water towers and two auto chemical engines. This makes a total of fifty-eight pieces of apparatus exclusive of the repair wagons, cars and runabouts for the officers, and the sundry automobiles of the department.

Division of Fire Defenses

The fire defenses are divided as follows: thirty-one engine companies, eleven ladders, eleven hose companies, three chemical, one squad and one water tower company. A captain and a lieutenant are assigned to each engine, hose and ladder company, one on each shift, in each of the forty-nine stations with the exception of five companies.

Each of the platoons has an equal number of men and the shifts which are ten and fourteen hours, alternate every three days. The men are allowed one day off in six with fifteen days annual vacation. The vacation schedules are so arranged that only one man is off in a company at one time.

The city is divided into six fire districts, each section having from five to fourteen companies to protect it. Each section is under the command of an assistant engineer on each shift, or else a captain. The officer is responsible for the condition of his territory and for the operation of the companies under his command.

District number one (includes part of the high value section) and District 6 comprise a large area, while District 5 constitutes all of Algiers, a suburban community on the opposite side of the Mississippi river.

Alarms and Repair Shop

During the representative year, the department received 377 bell alarms, seventy-three still alarms, 962 telephone alarms, fourteen general alarms and twelve repeated alarms, thus making a total of 1,438 alarms received during the year. Of the number of alarms received, 955 were for actual fires, 335 were unnecessary fire alarms, fifty-four alarms were false, sixty-one were for grass fires, and thirty-three were for dump fires.

The repair shop is located at the rear of the fire headquarters in an annex. It is equipped with a lathe, shaper, drill press, bench drill, emery wheel and power hacksaw, with the machinery driven by overhead shafting. Other equipment includes a traveling crane, a repair pit and a forge, in addition to the customary tools. The ordinary repairs are made in the fire department shop but extensive or heavy repairs that entails a certain amount of rebuilding are sent to the local shops.

About half of the members of the department belong to a union that is affiliated with the American Federation of Labor, although it is claimed that their constitution expressly forbids strikes. Decisions regarding discipline of the men are referred to the chief before the cases are tried. Appeals from his decision may be made within ten days to the board of fire commissioners, and there are few cases on record where the men have resorted to this practice. The action taken by the board is final, and the department has excellent discipline. The chief has the power to reprimand, suspend, fine, reduce the men in rank or dismiss a member, subject to the rulings of the fire commissioners, and he may suspend a member during his trial.

Inspection of Districts

A 62-foot, five-story drill tower is located in the rear courtyard for the training of the men. The department has a number of supernumeraries, or men who are awaiting appointment to the ranks. They are assigned to a company for service whenever the company is minus the service of two men. These supernumeraries, after having completed the civil service examinations, and after having received their appointment, are required to attend regular drills at the tower with the details from each company until they become thoroughly efficient in the method and operation of the various appliances.

Monthly inspections are made of all buildings in the congested value district, mercantile and warehouse section by company officers or a detail of one or two men from the companies in the district. Where the inspection discloses defects, a written notice is given to the occupant, and a follow-up inspection is made to see if the conditions have been removed or the defects remedied. In the instances where the occupant does not comply with the notice, the case is referred to the fire marshal and legal proceedings are started. In the residential districts, the inspections are only made twice a year. The theatres and public buildings are inspected periodically by the chief and assistant engineers of the district.

In the words of the engineers of the National Board of Fire Underwriters who made a survey of the conditions, "the fire department is well organized and effective. It is commanded by experienced and competent chief officers and the supervision is good. The financial support has also been good."

Airplane View of New Orleans Showing the Business and Financial District.

This gives one a good idea of the high values that are placed in the charge of Chief Evans.

The High Value District

The high value section of the city is divided into two districts. The south section comprises the uptown or more modern area of the business territory. It includes about seventy-four per cent of the block area and comprises the financial, wholesale and part of the mercantile and storage sections. Fireproof construction constitutes about twenty per cent of the buildings.

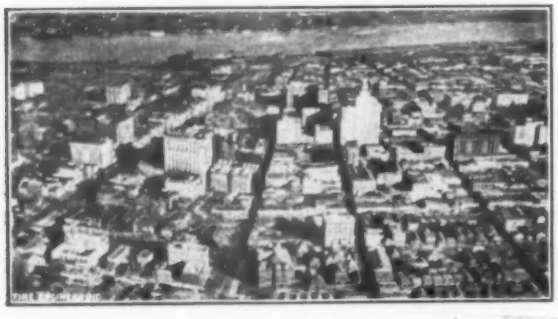
The highest building is twenty-three stories high and the fire proof buildings are so grouped as to form fire protection barriers.

The north section includes the old downtown section. About forty per cent of the buildings in this area are fireproof or sprinklered, and the possibility of a conflagration is remote.

In the French quarter of the city bordering the congested value district, the buildings are mainly small, brick, two to

A Scene at One of the Many Wharves.

The photograph showing the unloading of hides from South America, clearly indicates the immense problem of fire protection and fire-fighting that makes Chief Evans' position a responsible one.



Algiers—The Community Across the River.

four-story construction, used for minor mercantile with dwellings above, and an occasional small factory.

Along the river front for about six miles, there is a nearly continuous line of wharves with warehouses containing large and valuable stocks of sugar, rice, cotton and general merchandise. For almost a mile, the wharves and some of the large warehouses are of fireproof construction, and the other wharves are of plank construction on wooden piles with metal covered sheds supported by steel columns. Adjacent to the wharves are several sugar refineries, rice mills, iron and wood workers and other factories. There are extensive cotton compress and storage plants provided with private fire protection.

Outside of the fire limits, the building construction is mainly frame, and the roofs mostly slate.

Any chief who has had experience in protecting river front property can fully appreciate the man-size job that Chief Evans has in safeguarding the valuable storage contents, and the long line of wharves. It is only due to the efficient department that the losses have been kept as low as they are at present.

A valuable accessory to the fire department is the salvage corps which is maintained by a two per cent tax on all fire insurance premiums in the city. The corps consists of a superintendent, a secretary and thirty-two men. The men are organized on a two platoon basis, and the force is divided into three companies working on ten and fourteen hour shifts. Each of the trucks carry thirty stock covers, two to three roof covers, extinguishers, axes, shovels, brooms, squegees, sprinkler heads and a sprinkler shutoff, plaster hook, crow bar, buckets, sponges and a 24-foot extension ladder.

The territory is divided into two districts, and on all alarms in the value district, two of the salvage corps companies respond, leaving one for additional protection.

There is good co-operation between the fire department and the various city departments so that the work is efficient and dependable.

Recommendation for Near Future

Chief Evans in his annual reports recommends the installation of a high pressure water system in the high value section of the city. The values, it is said, in this territory are constantly increasing and the growth of the city dictates that use of powerful streams be considered. He argues that the use of this system would eliminate the confusion resulting from the large number of fire companies responding with their equipment. Other recommendations includes the construction of additional fire stations.

Chief Evans and his corps of assistants have been exceedingly busy in supervising the preparations for the entertaining of the convention of the International Association of Fire Engineers, and trying to ensure that the stay will be pleasant and long remembered. There have been many details to look after, but the committee feels justified in saying that this convention will be the "best ever."

Connecticut Fights Forest Fires

During the past year, there were 708 forest fires in the state of Connecticut, including three fires which burned over an area in excess of one thousand acres each. These occurred at Roxbury, Ridgefield and Wilton.

Through the efficient offices of Austin F. Hawes, state forester, several protective measures against the increase of forest fires in the state have been made. Governor Trumbull complimented Mr. Hawes and his assistants highly on their work.

Fire damage in Connecticut's other large area includes the towns of Avon, Bloomfield, Farmington, Granby, Simsbury and West Hartford, and is covered by the Talcott Mountain Protective Association. This area includes 106,130 acres.

Through the efforts of this organization, the cooperation of Travelers Insurance Company at Hartford has been secured. A fire observer is stationed in this tower, the highest building in New England, and the observer has a view of most of Hartford County. While there are other towers in the state constructed at higher elevations, this one enjoys the honor of being

Tower of the Travelers Insurance Company in Hartford, Conn. in Which the Observer is Stationed. Insert—Obtaining the Location of a Forest Fire from the Tower.

the highest building used for forest fire observation. The tower is 527 feet high and between 350 and 400 square miles are visible in clear weather.

T. F. MAGNER.

Dunsmuir, Cal., Chief Presented With Gift—J. F. McDill, chief of the fire department at Dunsmuir, Cal., has been presented with a mahogany bedroom set by the members of his department. Some time ago, all of the personal property of the chief was destroyed by fire, and the gift of the firemen was greatly appreciated.

What Constitutes the Ideal Fire Department?

Many Things Enter Into the Matter of Perfection—Elimination of Politics—Efficient Care of Apparatus—Drills and Training

By CHIEF SELDEN R. ALLEN, Fire Department, Brookline, Mass.*

IT IS not always an easy task to describe an ideal, and Chief Allen undertook a big contract when he attempted to set down what was perfection in fire-fighting practice. His accomplishment in the following paper is all the more commendable:

Chief Selden R. Allen, Brookline, Mass.

Fire fighting is the most serious profession known to man in times of peace. The service rendered by the call firemen of this country can never be measured in terms of dollars and cents. No night too cold, no road too long to deter these intrepid men from going to the assistance of a stricken one. This fire demon is no respecter of persons, but enters the home of the lowly and rich alike. Imagine the feeling of General Pershing when he received that cablegram saying that his entire family, with one exception had been burned to death. I repeat, fire fighting is the most serious profession known to mankind in times of peace.

The ideal fire department contains nothing mysterious, nothing but what time and experience have proven to be a necessity. The personnel of a fire department should be selected with a great deal of care. After twenty-nine years as a permanent fireman, coming up through the different grades, I am yet unconvinced as to whether or not Civil Service is the best test for admission to a fire department. It has its good points, but does not always produce the best man.

No Middle Ground in Elimination of Politics

I have very strong convictions on the elimination of political influence and control from a fire department. With me there is no middle ground. The politician who seeks to pay his political debts with appointments and promotions in any fire department deserves nothing but the contempt of the decent citizens of that municipality.

The tenure of office should be guaranteed every man who enters a fire department, and that tenure of office should continue during good behavior, and removal should only be after a fair trial and after charges have been preferred, and a fair hearing has been given this man. In order to safeguard the interests of the man on trial I believe in the appeal to the justice of a local court, such as we have in Massachusetts, whose decision is to be final.

I am also a firm believer in the two-platoon system. It will improve the morale, increase the efficiency of any fire department that adopts it.

The salary is rather a hard thing to standardize. It varies, to a large extent, with the financial standing and ability of the municipality under consideration. I know of no city or town that pays too much. I know of a great many that do not pay enough to their firemen. Speaking of the commonwealth of Massachusetts I don't believe that their is a chief of a fire department that receives within $1,200 of the salary he should receive for the responsibility he shoulders. Pensions should be provided for the men who fall in battle, and also for the widows and dependents who remain. In Massachusetts that amounts to from $200 to $600 for a widow or dependent of those killed in battle or who die from injuries received within sixty days. An old age pension should be provided for every man who has served twenty-five years, or who has reached more than sixty years of age, and should be not less than one-half of his yearly salary.

The Drill School and the Drill Master

Now we come to the drill school. You can all remember the day that you sat, for the first time, behind the steering wheel of an automobile, and the task seemed unsurmountable, and yet practice and training made it possible for you to master what seemed most difficult in the activities of a fire department, whether it is the raising of a ladder or running a line of hose or operating these machines. Practice develops perfection. The selection of a drill master is a thing that should be considered very carefully. Temperament is a big factor in the success of any drill master. A drill school teaches you not only to handle your equipment properly, but educates men to work in unison with brother firemen, and is an absolute necessity in any fire department, either volunteer or permanent.

Stern, but Not "Hard-Boiled," Discipline

I am a firm believer in the sternest form of discipline, and when I mention discipline I do not count the "hard boiled Smith" type of discipline. That is not discipline, that is the highest type of ignorance. Every man is entitled to courteous treatment, and even in time of battle men can be treated courteously, and orders should be issued in decent language.

In a permanent department the very life that a man lives underfits him for the work he has to do. Fire fighting is an athletic business, and yet on the average, two hours will accomplish all the housework in a station, and the balance of the day is spent in idleness. In my department we have an arm setting up drill at ten in the morning and seven at night, and every member has to go through that setting up drill. You can notice a tremendous improvement in operation at a fire after you have put in a setting up drill.

Every Man Should Be Efficient in Resuscitation

Now, gentlemen, I am a red-hot advocate of the Prone method of resuscitation. Every man in my department has been forced to become efficient in resuscitation. Emergency may arise at a fire or out anywhere on a vacation, and if you are equipped with this knowledge you stand out from the mob, and the result emphasizes the training. It is a wonderful thing to feel that you have within your hands the ability and knowledge to bring a person back to consciousness. I don't know as I do enthuse over pulmotors. They are a hard, non-plastic sort of a device and apt to dilate a man's heart unless operated very carefully. The modern fire department is not complete today without gas masks. Some of my brother chiefs differ with me. They should be used with a great deal of care. It allows you to reach your air much quicker and gives you an opportunity to ventilate much quicker than anything else. In the old days

* Excerpts from a paper read before the Vermont Firemen's Association.

"I have very strong convictions on the elimination of political influence and control from a fire department. With me there is no middle ground. The politician who seeks to pay his political debts with appointments and promotion in any fire department deserves nothing but the contempt of the decent citizens of that municipality."

it was just considered a disgrace to step back before you went down and out, but fires are not that way today.

Fire Apparatus Should Be Standardized

Apparatus, I am convinced after considerable experience, should be standardized. I do not believe in the ordinary commercial piece of apparatus. I have very pronounced ideas on standard apparatus. The speed at which these machines go through the streets is altogether too fast. The machine by the side of the road is of little use to the fire a mile distant. Twenty-five miles going, and twenty returning, is fast enough for any piece of apparatus, and I believe no chief's car, or deputy's car, should go through the streets at a speed greater than thirty-five miles an hour. In connection with this great care should be exercised in the selection of the equipment that goes on that apparatus. Cellar pipes are an absolute necessity today, and wagon pipes have their place in the fighting of fire.

Perfect Laws Needed for Proper Functioning

Perfect laws, in relation to a fire department, are an absolute necessity for the proper functioning of any fire department, and in Massachusetts we were successful last year in having a statute enacted which incorporated a law similar to that created in the City of Cambridge by Chief Casey, which obliges all vehicles, upon approach of fire apparatus, to move to the right curb and there stand until the apparatus is 300 feet distant. A severe penalty is provided for violation of that law. It makes it an offense to approach within 600 feet of any fire line, so that the second fire line can get within working distance of the fire.

Hose Is Either Good or Bad

There seems to be a peculiar sort of opinion about hose, whether it is good or fair. I cannot quite see that angle. Hose is either good or bad. A weak spot in a length of hose today is a leak tomorrow, and the hose line is your conveyor of ammunition. Hose should be tested once a year, and any piece that shows a leak should be discarded. I believe in standardized hose, because it enables cities and towns to co-operate. No city or town in the United States can afford to maintain a conflagration size fire department. We are all dependent upon one another at some time, and the standardization of coupling is an absolute necessity. In connection with this hose question the water supply is rather a hard thing to lay down hard and fast rules about, but I am unalterably opposed to the laying of a four inch main in any city or town. It just isn't there when you need it, and when you consider that the cost of installing a six inch pipe, which carries two and three-fourths as much pressure as the four inch, there is absolutely no argument. The cost of pipe and installation hardly exceeds ten per cent more.

Location of Hydrants Under Jurisdiction of Chief

In connection with this water consideration the location of hydrants should be under the jurisdiction of the chief of the department. He is the man who has got to fight the battle and knows the strategical points in his territory, and I believe that the superintendent of water works should attend to the laying of pipe, and the location of water main should be completely under the authority of the chief of the fire department. In these northern climates we hear of a fire being lost on account of a frozen hydrant, and where a municipality has a reputation for that sort of thing they should procure a thawing device, for there are devices that will thaw out any of the frozen hydrants in a remarkably short time.

Fire Alarm System a Necessity

A fire alarm system of some sort is an absolute necessity, and I know of nothing that calls for greater vision in installing than a fire alarm system. Too many municipalities only feel the need of today. If you need three circuits today, put in six, and the location of fire alarm boxes should be under the jurisdiction of the fire department.

Fire-Fighting in General

It is presumptuous, perhaps, on my part, to enter into a discussion of fire-fighting in general, but fire-fighting has been put on a more scientific basis in the last few years than it ever has been before. Ventilation is a big factor in successful fire fighting. The first ladder truck at a fire should throw ladders to the roof. A fire will either travel vertically, and meet with resistance, and spread horizontally; or, with proper ventilation, it will go up and out, and your men can fight their way upward. In conjunction with that, if I were chief of the Rutland Fire Department I should feel tremendously relieved when I learned that Rutland had in mind the purchase of an aerial truck, for I think you will find it an improvement in fire fighting and absolutely successful.

The man, in fighting a fire, should always keep in mind his exposures. If he fails to do so he is inviting a young conflagration. A great many times it is an absolute necessity to let the burning building go and protect the adjoining property. You should protect your exposures and confine your fire. In interior fire-fighting, in residential districts, the use of chemical lines is recommended. It is also a good plan to keep one line above your fire, a dust hose in the story above where the fire has started.

Fire Prevention Pays the Larger Dividend

The activities of any fire department are divided into two parts, fire extinguishment and fire prevention, and fire prevention pays by far the larger dividend. As you sow, so shall you reap, and you cannot sow a lot of rubbish in the cellars of these stores and have fire prevention. Fire prevention begins by removing those things that start fires, or accelerate it once it has started, and in connection with fire prevention it is necessary to have a good working staff, building laws, no matter how small the municipality, and the elimination of the wood-shingled roof is imperative, even in the country towns. It not only removes these things that accelerate fires, but it familiarizes your firemen with means of ingress and egress. It is an impossibility to get these towns and cities to junk this old type of building. We all have them, and the only thing to do is to safeguard them as far as possible. And the best known method that I know of, or can recommend, is the installation of the automatic sprinkler. Very few of them will be put in on account of the expense, but in the old type building it should be compulsory. In conjunction with this set of building laws I firmly believe that the chief, based upon his experience, is responsible, that he must assume responsibility, where these buildings are erected, and should be a member of the building committee.

Compiler of New York Department's Rules

Nearly two years ago, Chief Kenlon of New York summoned to his office Capt. John J. McCarthy, who was and still is in charge of the Division of Places of Public Assembly, having to do with all the licensed theatres, amusement resorts, arenas or any other congregating point for the public seeking entertainment.

"How much time have you to spare these days?" inquired the veteran sailor and fireman of "one of my bright young officers," to use the Chief's affectionate reference to any of the young officers in whom he sees future glory as fire fighters.

McCarthy said he had his hands full handling his staff of theatre inspectors and going about at night himself supervising the work of his force in the 397 theatres in New York, but he would always be glad to tackle any emergency.

Captain John J. McCarthy, New York City Fire Department.

Chief Kenlon thereupon told the Captain to take the 1912 Book of Rules, revise it, consolidate the official orders and amendments issued since 1912 and submit a new book of rules.

McCarthy went to work with a will. He consulted his chief only on questions of policy. The chief conferred with him occasionally with the result that the title page of the new book contains this line:

"Compiled and edited by Capt. John J. McCarthy."

Captain McCarthy is only 35 years of age. He was a clerk and a stenographer before entering the fire department in 1913 at the age of 22 years. He served four years in the department when he enlisted in the army and was commissioned a lieutenant and placed in charge as fire marshal of the entire area embraced in the Port of Embarkation. He held this post for Uncle Sam for two years, with headquarters in Hoboken.

Two years following his discharge from the service he was promoted to a lieutenancy, and assigned to H. & L. Co. 43 in the busiest and fastest working section of the tenement district in Harlem. Two years more saw him a captain, with the distinction of attaining first place on the eligible list. His name appears three times on the roll of merit. Twice in class "A" and once for the Administration Medal.

Reorganization of the Pittsburgh Fire Department

Many Offices Were Abolished and the Number of Other Positions Were Increased—Short Biographies of Battalion Chiefs

By WILLIAM E. PATTERSON, Bureau of Fire, Pittsburgh

A REORGANIZATION of a fire department always means a shift to catch up with the trend of the times. For that reason the changes made in Pittsburgh, Pa., will prove of interest.

In accordance with the reorganization of the Pittsburgh Fire Department under the direction of the Mayor, effective June 22, 1926, the following changes were made in the personnel, salaries and classification of positions in the Department, with the view in mind of increasing the efficiency and morale of the department. It resulted in the promotion of nine captains to battalion chiefs, the re-appointment of the former chief of department, M. F. Shanahan, to the position of a battalion chief, the promotion of sixty-five senior and junior lieutenants to captains of engine and truck companies, promotion of two captains to training school instructors at the Firemen's Training School, the promotion of sixteen drivers, assistant enginemen, hosemen, laddermen, and aides to the position of lieutenants of hose companies, the appointment of eight substitutes to regular positions of hosemen and laddermen, and the retirement of two captains and one lieutenant on pensions.

Appointment of New Chief Begins Reorganization

The reorganization of the fire department really started with appointment by the Mayor, of Battalion Chief Richard Lee Smith as chief of the department, and the appointment of former Battalion Chief Frank G. Jones, retired, who was reinstated and appointed as a Deputy Chief, effective, February 1, 1926.

Number of Captains Increased

In order to give the deputy chiefs and battalion chiefs the benefit of the two-platoon system as enjoyed by the other men in the department, one new deputy chief, Frank C. Loxterman, and nine battalion chiefs were added to the department, one of this number to fill a vacancy in the third battalion, thereby making a total of fourteen battalion chiefs in all, seven on each turn or platoon. Each turn or platoon is to be under the command of a deputy chief.

The number of captains was increased from forty-six to 102; with this change, the positions of senior and junior lieutenants on engine, hose and aerial truck companies were abolished and two captains of equal rank, pay and responsibility were assigned to engine companies having in service a triple combination gasoline pumper or a combination hose and chemical wagon and tractor-drawn steam fire engine.

Two captains of equal rank, pay and responsibility are assigned to hose companies having a combination hose and chemical wagon in service or where a city service truck or other pieces of apparatus are stationed in the same house with the hose company. This replaces a captain and a senior lieutenant. On hose companies where there is only one piece of apparatus —a combination hose and chemical wagon — two lieutenants of equal rank, pay and responsibility are assigned instead of a senior and a junior lieutenant.

On aerial truck companies, two captains of equal rank, pay and responsibility have been assigned instead of two junior lieutenants of equal rank and pay.

In fire stations where an aerial truck company is located with an engine company, the captain of the engine company will be the ranking commanding officer of company quarters.

Senior Lieutenants Abolished

The position of senior and junior lieutenants in the fire department as created under a former reorganization of the fire department in 1924, when the number of captains were reduced from ninety-eight to forty-six, resulted in a reduction in rank and pay for the forty-six captains reduced to the position of senior lieutenants. This created much dissatisfaction on the part of the captains who were reduced in rank. They brought enough influence to bear on the members of the city council to have the position of senior lieutenant abolished and that of captain created. This was approved and signed by the Mayor.

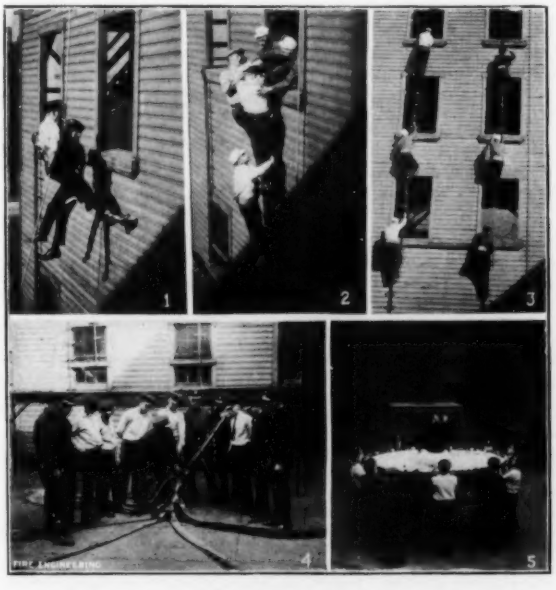
Under the present reorganization all of the forty-six captains who were reduced in rank and who are still in the fire service were re-appointed to their former positions and rank as captains; most of them remained in the companies where they have been filling the position of senior lieutenants.

Training School Reorganized

The Firemen's Training School, located at Engine House No. 14 on Neville Street, which was practically abolished with the elimination of the two positions of training school instructors, again becomes a valuable unit with the restoration of these two positions by the City Council. The school is now being reorganized under the direction of Chief Smith with the aid of his deputy chiefs.

All activities of the training school, including drills, company and officers' classes, are being resumed as rapidly as possible. It is the aim and ambition of Chief Smith to make the training school a most active and valuable unit and to make it better and more efficient than it has ever done before.

Captain Alvin K. Foster, who was one of the two original training school instructors appointed when the school was established in 1913, and who was transferred to Engine Company No. 14 as captain when the two instructorships were abolished in 1924, has been re-appointed as one of the instructors and will have full command of the school. He will be assisted by Captain Louis J. Conley, formerly of Engine Company No. 25. Captain Conley is a new man at the school and fills the position of training school instructor formerly held by Captain Peter J. McGuire.



Activities at the Pittsburgh Fire Training School

1—Lowering a comrade; 2—Instructions in rescue work; 3—Pompier ladder work at the drill tower; 4—Receiving instruction in the operation of the siamese and heavy stream appliances; 5—Practice in net jumping.

Assigned to New York School

On March 31, 1915, Captain Foster, along with Captain James Kane of Engine Company No. 34, now retired, who was appointed instructor, were sent to the New York Fire College for a thirty-day course of instructions and training to fit them for their new positions.

Upon their arrival in New York they reported to Chief John Kenlon. They were assigned for fire duty on Truck Company No. 24 located on West 33rd Street near Sixth Avenue, under the command of Captain Cozine—one of the busiest Truck Companies in the city, and the headquarters of First Deputy Chief "Smoky" Joe Martin. Captains Foster and Kane answered

all alarms with this company at night and attended the school or college courses each working day, from 9 A. M. to 4 P. M.

Captain Foster and Captain Kane graduated from the Fire College with high honors and their work, attendance and strict attention while at the Fire College was highly commended by Chief Kenlon in a letter to the late Charles S. Hubbard, at that time Director of the Department of Public Safety.

After receiving their diplomas and attending graduation exercises of their class they stopped off at Philadelphia where they spent two days at the Philadelphia Fire Department Training School.

Careers of Battalion Chiefs

Battalion Chief Henry F. Schwarz has been a member of the Fire Department for twenty years joining the department as a substitute hoseman, December 1, 1906, and appointed a regular hoseman on January 9, 1907. He was appointed driver on March 1, 1907, and promoted to lieutenant, May 13, 1916. On December 1, 1917, he was made captain.

Battalion Chief Schwarz was born in Pittsburgh, Pa., December 5, 1881, and is 45 years old; before entering the fire department he followed the trade of a machinist.

Battalion Chief William M. Graves has been a member of the fire department for twenty-four years, joining the department as a substitute hoseman on June 1, 1902. He was appointed a regular hoseman, August 1, 1902, and assigned to Engine Company No. 3, the busiest fire company in the downtown district, with which company he remained until appointed battalion chief. On May 5, 1905, he was advanced to lieutenant, and to captain July 10, 1916, when the two-platoon system became effective. Chief Graves was born in Pittsburgh, Pa., January 6, 1879, and is forty-seven years old; before entering the fire department he was a baker.

Battalion Chief George P. Sparr, has been a member of the fire department for twenty-one years, joining as a substitute hoseman, July 31, 1905. He was appointed a regular hoseman December 12, 1905; appointed driver March 1, 1910, and assigned to Engine Company No. 26. He advanced to assistant engineer May 6, 1914, and to captain March 11, 1923. Chief Sparr was born in Pittsburgh, Pa., December 10, 1881, and is forty-five years old; before entering the fire department he was a mill worker.

Battalion Chief Herman J. Weihrauch has been a member of the fire department for twenty-three years; he was appointed a regular hoseman December 7, 1903. On June 1, 1911, he advanced to lieutenant and became captain on July 10, 1916. Chief Weihrauch was born in Pittsburgh, Pa., December 28, 1877, and is forty-nine years old; before joining the fire department he was a professional ball player.

Battalion Chief John B. Callaghan has been a member of the fire department for thirteen years joining as a substitute hoseman, May 16, 1913. On January 3, 1914, he was appointed a regular hoseman, and he was appointed driver on July 10, 1916, when the two-platoon system became effective. Callaghan was appointed lieutenant May 10, 1919, and captain on March 10, 1923. Chief Callaghan was born in Pittsburgh, Pa., December 26, 1891, and is 35 years old. He too was a mill worker before becoming a fireman.

Battalion Chief Saul Klein has been a member of the Fire Department for ten years, joining as a regular hoseman July 10, 1916, at the time the two-platoon system became effective. He was appointed driver on August 15, 1918, and lieutenant on December 1, 1920. On August 1, 1923, he was advanced to captain. Chief Klein received practically all his training under the present Chief of Department, Richard L. Smith, and is the youngest man that has ever held the position of a battalion chief. Chief Klein was born in Pittsburgh, Pa., February 2, 1893, and is thirty-three years old. Before entering the department he was a railroad fireman.

Battalion Chief John H. Frazier has been a member of the fire department for twenty-six years, joining as a substitute hoseman June 16, 1900. He was appointed a regular hoseman September 21, 1900, and later appointed lieutenant on September 15, 1906. Frazier was acting captain October 20, 1909, and was appointed a regular captain July 10, 1916.

Fire Department Surgeons Elect New York Doctor—Dr. Daniel Donovan, chief surgeon of the New York Police Department, was elected president of the National Association of Police and Fire Department Surgeons and Medical Directors of Civil Service Commissions of the United States at the convention held in Philadelphia.

Philadelphia Fireman Turns Policeman—When a fireman of Philadelphia went to start his car, he found three boys about to start off with his automobile, and when he ordered them to stop, they "stepped on the gas." The fireman leaped on the running board, turned policeman and had the three boys arrested.

Abilene, Tex., Has New Fire Alarm

On Saturday September 11, the Mayor and Commissioners of Abilene, Texas, tested and inspected the new Gamewell fire alarm system consisting of a six circuit storage battery switchboard, six circuit repeater, sixty-five Herculite succession boxes, and gongs and registers on two separate circuits at each of the present two fire stations. A time stamp records the time of all signals received and automatic light switches light up the entire fire station at night. The fifteen non-interfering excelsior boxes formerly located in the business district were installed on one circuit in the outlying residential district. After the inspection the system was duly accepted by the Mayor and Commissioners and the system formally turned over to Chief Frank J. Ferrier who was mainly responsible for its installation. Nathan Jolliff, son of Guss Jolliff who for over twenty years was superintendent of the fire alarm system at Shreveport, was appointed superintendent of fire alarm.

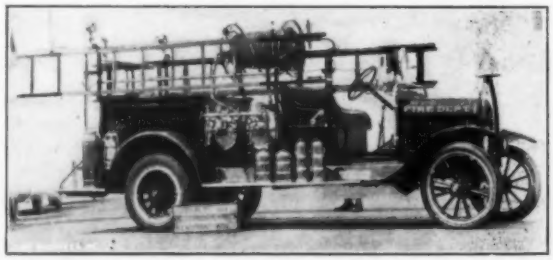
On Monday, September 11, the public inspection of the two new fire stations took place and hundreds of citizens and their

The Fire Defenses of Abilene, Tex.

1—Gamewell box mounted on a lamp post; 2—Central Fire Station and apparatus; 3—No. 2 fire station with some of the men of the company

families and the city officials with their families visited the stations where the band of The Majestic Theatre entertained the visitors. Demonstrations of the operation of the fire alarm system were made every few minutes and the visitors were instructed how to operate the fire alarm boxes. The Mayor told the Superintendent of schools to arrange for all schools to bring the children to the fire stations in the near future so that they could see how to operate the boxes and become acquainted with the firemen and fire apparatus. The boy scouts will also be brought to fire headquarters for instruction.

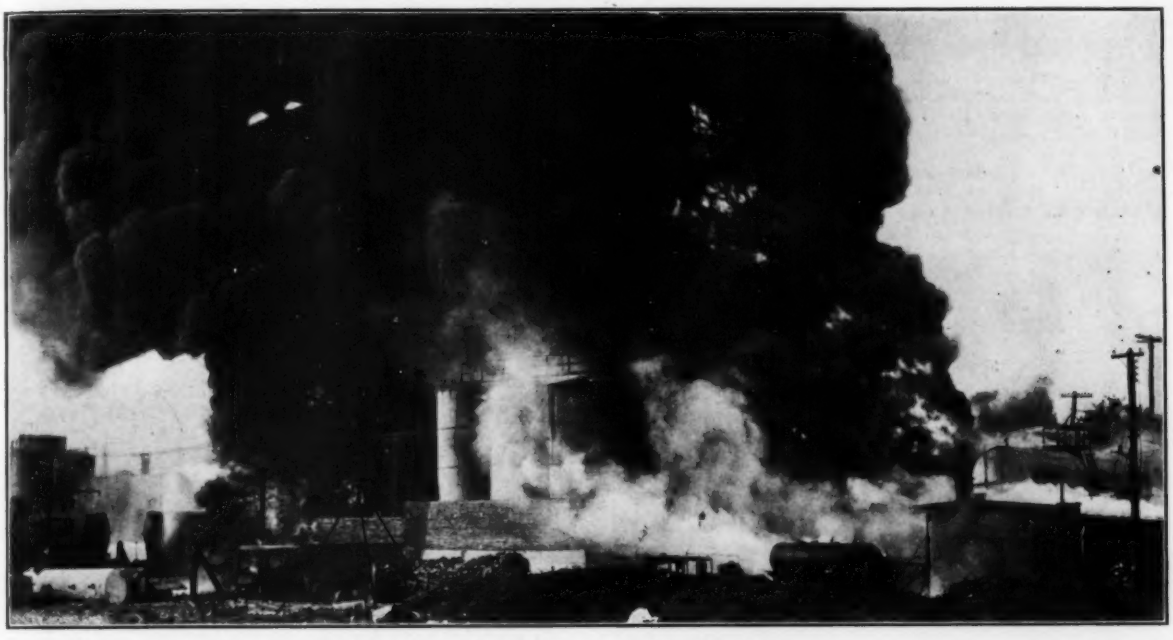
Mayor Coombes and the Commissioners were highly pleased with the attendance at the reception and several citizens praised the administration for their part in giving the citizens two new fire stations with all modern equipment and the new fire alarm system.



Double Chemical Tank Delivered to Hebron, Ill.

The Pirsch-Ford double tank chemical and hose car equipped with forty gallon chemical tanks was delivered to Hebron, Ill.

Charlestown, Mass., Fireman Hurt by Extinguisher—A member of Ladder Company No. 17, Charlestown, Mass., was seriously hurt when a hand extinguisher exploded as he and another fireman were extinguishing a blaze. Pieces of iron struck him on the chest, chin and shoulder.



Petroleum Distillery Fires are Hard to Handle.

Fires occurring in oil stills are very troublesome due to the presence of various types of oils and their by-products, including the highly inflammable casing head gasoline. The types of establishments, too, make it difficult to get at the fire and certainly extremely dangerous for the men operating at fires around the plant. The above picture taken of a fire which occurred recently at Baltimore.

Essentials in Handling Oil Fires

Some Pointers on Methods of Operating at Fires in Oil Plants from the Standpoint of the Fire-Fighter

By GEO. J. KUSS, Former Deputy Chief, N. Y. F. D.

OIL fires are numbered among the most serious that the fire department has to contend with and great care, judgment and discretion must be exercised by commanding officers in charge of operations.

Hazards

The principal hazards to guard against are:

1. Explosions, which are caused by gases in partly filled tanks. Gasoline vapor mixed with air in certain proportions forms an explosive mixture of great power. Most people understand this fact nowadays through familiarity with the automobile. The carburetors are designed to mix gasoline vapor and air in proportions that give rapid and energetic explosions in the engine cylinders where the force is utilized for locomotion. When a carburetor is improperly adjusted, the gasoline-air mixture does not explode, either too much air or too much gasoline vapor preventing explosion. Experiments by the Bureau of Mines have shown that explosion or flammation occurs only when the gasoline vapor in air ranges between 1.4 and 6.4 per cent by volume.
2. Explosion of gasoline vapor mixed with air and which has accumulated around refineries, stills or tanks.
3. Flash-overs of petroleum oil spilled on ground around oil refineries, stills or tanks or floating on surface of water.
4. Oil overflowing and spreading throughout building.
5. Rupture of tanks, causing spread of burning oil.
6. Exposure to adjacent property through oil in tanks boiling over or through ignition of vapor rising from heated tanks.
7. Open flames, such as oil lanterns, etc.

Oil fires are usually caused by one of the following:

Carelessness
Leakage
Vaporization
Static electricity.
Lightning
Spontaneous ignition (of organic substances around plant).

They usually start in stills, tanks, or in filling and storage buildings.

With petroleum the degree of hazard varies with the products —light gasolines are a constant menace, but heavy fuel oils are not prone to ignite.

Inspection of Plants Essential

Commanding officers will be in a better position to fight an oil fire, if previous to it, they make frequent visits to the plants and carefully inspect them, interview men in charge, learn the exact conditions existing there: how many tanks, sizes, drawing off method, what fire protection is offered; locate apparatus for fire extinguishment, make examination of all equipment, thoroughly know the layout with a view of getting men to places of safety in case they are cut off at such fire. Lay out a plan for fighting the fire in advance. Determine if the ordinance requirements are being strictly adhered to. Assemble men from time to time, at such places and thoroughly explain conditions to them. Have line of attack decided upon and carefully instruct subordinates in their duty in the event of such fire occurring. Officers should ascertain the best and quickest means of extinguishing these fires also the location of valves and the way to pump oil from one tank to another.

At this point it should be noted that all companies operating in an oil plant or refinery involved with fire are at all times in extreme danger, and officers should be on the alert to see that their position is such that they are not confined to a single avenue of escape when the unexpected circumstances develop.

Fighting Oil Fires

The first thing to do is to locate the man in charge of the plant. Find out what has been done, what dangerous conditions have developed, extent of fire, and other points which are essential in controlling fire.

Don't throw water into oil tanks on fire. Water sinks to bottom, causes tanks to overflow, and burning oil on top spreads throughout plant. Streams directed on outside of tanks will keep tanks cool until oil has burned away. Have employees draw off oil to other tanks distant from one on fire.

Care should be exercised when a still is on fire, as the use of water may cause a rupture of the still and permit the oil to flow out. It may be effectively used in cooling down plates of involved tanks, in wetting down adjoining tanks, cooling receptacles that are likely to have fire carried to them, also wetting down buildings adjacent to the fire. Very skillful operation is, however, necessary. The careless use of a powerful stream in connection with an oil fire may result in a conflagration. Where there are cans and drums, the water can be used to spray them.

When entering a yard during the progress of a fire, guard

Collapse of Oil Tanks Must be Guarded Against.

One of the hazards in connection with fires in oil tanks is the possible collapse of the tank and the spreading of the burning fluid. This illustration shows a fire which occurred near Salt Lake City and in which several men were killed. Picture shows men tearing down wire fences and fishing out of the oil within the dykes the bodies of men who were caught.

your exits. Always have a safe retreat in case of a spill or explosion cutting off main path of escape.

See that dykes are in order—or build dykes where necessary, and possible (use sand bags, loose sand, earth or ashes).

When operating within the city if oil is overflowed it may run into sewers. Bank it up and surround it with streams, allowing it to burn out. Use the same measures when oil overflows into river. Do not allow it to float on water and get away when ablaze; surround it with streams and let it burn out.

The Refinery

Petroleum is procured from the earth in very much the same manner as artesian well water. The well is drilled and the oil is either forced up by the gas pressure within the earth or else pumped up by pumps capable of forcing the oil up the depth of the well.

Oil may be transported from the oil field to the points of refining by either pipe lines (one of which is 1,600 miles in length) or may be transported to the refinery in tank cars or tank steamers. Where refineries are located in large cities along the seacoasts, the oil is usually sent from the oil field by pipe lines to the nearest port and then shipped by oil tank steamers up to the refining plants. These oil tank steamers are made up of a number of oil tanks placed side by side or a large tank with bulkhead partitions at different points in its length.

The petroleum or crude oil as received at the refinery is usually just as it comes from the well.

Refining means separating the petroleum or crude oil into its various products.

This is done by distilling off the lighter oils first and then subsequently treating the residual oil for separation into various products.

Some of the products secured through distillation and subsequent treating of the crude oil are: gasoline, benzene, kerosene, lubricating oil, paraffin or wax, tar coke, and a number of other products not finding very wide use, for instance, ether, soft wax, sludge acids, etc.

The stills in which the crude oil is first refined consists of large tanks sometimes over 40 feet in length and 15 feet in diameter and set in furnaces so as to be heated on one side only.

The upper surface of the distillery tanks are connected by piping to the condensers where the vapors are condensed to secure the different products.

The stills may be fired by either the oils used in the stills, fuel oil removed from the still after the lighter oils have been vaporized off, or by coal or coke.

After the different products have been removed from the still either by draining off, condensing the vapors from the still, or separating of the residual materials in the still, these substances are stored in tanks or in other containers.

The "high test" gasolines are the most dangerous and are usually placed in tanks which are isolated or otherwise protected against exposure fires.

The heavier oils which have less tendency to ignite or to throw off vapors are stored in tanks in larger groups, with less space between.

Tar, wax oil and other heavy products of the stills have but little fire hazard and are placed at most convenient points for loading and shipping.

Frequently there are in connection with oil refining plants shipping departments in which the oil is placed in 5 gallon or smaller cans and sealed.

The sealing is done by soldering of the top on the can after the oil has been placed therein.

In plants of this sort great numbers of cans filled with oil and some partly filled with oil may be encountered.

An ordinary filling machine for filling these oil cans fills 32 at one time. There is likely to be a presence of oil around on the floors due to the improper placing of the cans or the improper functioning of the filling devices.

While drains are provided for draining off the oil so spilled, there is always sufficient on the floor around oil apparatus to create a severe hazard in case of fire

The soldering is frequently the cause of fires, due to the heat employed. Hot solder falling on the floor where oil is present often starts fires and then again the vapor from the oil is often ignited from the heat of the soldering iron.

In operating around a plant of this sort where there are a large number of oil cans, care must be taken not to upset the cans nor permit them to be exposed to severe heat where they will likely burst (when sealed).

There is not much danger of the water entering the oil cans and causing the oil to flow out of the cans because the opening for filling is comparatively small and the chance of any amount of water entering these small holes is remote.

It is safe practice to keep the cans cool if exposed to heat by spraying a stream continually over them.

This practice is safe provided there are no widely opened oil vessels around containing quantities of oil which may be overflowed through water entering therein.

It is again urged that officers in charge of men operating around such plants keep track of all men at all times and do not permit men to straggle around among the stills, or at

A Troublesome Point in Handling Oil Fires.

Where oil fires occur on river fronts or on lakes there is great danger of burning oil spreading over the surface of the water. Streams must be used to drive the fire back and break it up on the water surface.

points where there lives would be endangered should explosion occur.

Foam System for Extinguishing Oil Fires

During the past few years the use of foam for extinguishing oil fires has made great headway, due, chiefly to the effectiveness of this type of extinguisher on oil fires.

The chemical solutions used in the foam apparatus are such as used in chemical apparatus familiar to almost everybody, and extinguish the fire in precisely the same way.

(*Continued on page* 1060)

Russian Fire Brigade Uses American Methods

How a Test Fire of Oil Was Put Out by the Fire Department of a Batum Oil Company—Modern Methods Employed

By CHIEF G. M. MAMIKONIANZ, Fire Department, Azneft Oil Concern, Bakum, Russia

IN submitting the following article, Chief Mamikonianz writes to FIRE ENGINEERING: *"We have been subscribers of your magazine for three years and we certainly are much interested in all of the new methods of extinguishing oil fires. As you can see by the article enclosed in this letter, we are fighting oil fires with American apparatus and American methods, which we have learned from* FIRE ENGINEERING. *We hope that it will be of interest to your readers to learn that in far Russia we use your apparatus and methods in fighting fires in oil."*

G. M. Mamikonianz, M. E., Chief, Azneft Fire Department, Baku, Russia.

Since the year 1923 the fire department of the Azneft (the oil concern of the government of Aserbaidjan) has applied the principle of extinguishing burning oil with foam.

For this purpose we use motor cars on which two tanks (the capacity of each being from 400 to 2,000 liters) are placed. These tanks are filled, the first one with an alkali solution, and the other one with an acid solution—alumina sulphate.

These solutions are delivered by two hand pumps to a special mixing box, from which the generated foam passes through a 2½-inch hose and nozzle to the burning oil surface.

Improvements in System Introduced

The first test conducted with the foam solutions were successful and a range of extinguished fires including the oil pit in Biby-Eibat; oil well fountain N6 in Surachany; benzine tanks in the Black City and many others have advanced the practice of the foam-extinguishing system.

A set of improvements has been introduced and fully mechanical methods in the practice of the delivery of foam to the burning oil have been reached. Many improvements, the necessity for which was acknowledged during recent fires and conducted tests have been introduced and the practice of extinguishing fires on the oil fields is now perfect.

Description of the Test

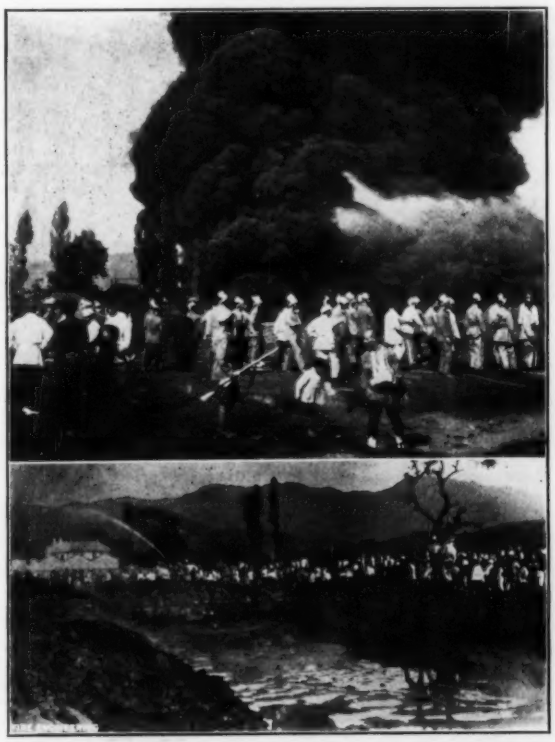
It will be interesting to describe one of the tests conducted in Batum a year ago—August, 1925—under the direction of the writer.

A pit 84 feet long, 28 feet broad and 3½ feet deep was dug and 15 tons of crude oil and ½ of kerosene were placed in it. At about 4:10 P. M. the oil was ignited. One minute later great clouds of smoke rose approximately 400 feet in the sky. A slight wind was blowing and at the windward side at the distance of 700 to 800 feet it was as dark as in the night.

The fire engine company of the Neftesindicats fire department came along two minutes later, and then the municipal and the volunteer fire engine companies arrived. Many thousands of inhabitants were present to look at the fire. The latter, as they recognized that it was only a test, said that it was questionable whether the results could be successful as the fire increased and it was very difficult to reach the burning surface. Lines of fire hose were laid out to the pit and the municipal fire department was invited to extinguish the fire with water, with the intention of showing that it was impossible to use water for this purpose.

Unsuccesful Efforts to Extinguish with Water

All the efforts of the municipal fire department were unsuccessful and the fire increased. The flame was so great, that not only the citizens but also the firemen said it was impossible to fight such a fire. The upper illustration shows the fire 10 minutes after the ignition. The fire was allowed to burn 15 minutes and as the flame was 50 feet high the Aznefts Fire Department started to extinguish it with foam from one apparatus designed and built by the department.



Testing the Foam Principle in Extinguishing Fire in Russia. Upper, 10 minutes after the beginning of the fire. Lower, the pit, after fire had been extinguished with foam.

Extinguished in Two Minutes

Four minutes later, the flame was knocked down and the fire was fully extinguished. After the first test, when the oil had been cooled with streams of water and the foam was dissolved in oil, the test was repeated. By the same conditions but with a nozzle in more experienced hands the flame was knocked down and the fire extinguished in two minutes. After the second test a large amount of oil still remained in the pit.

Advertising Car for the "Fire Brigade"

A Packard Six Phaeton has been painted red and with the legend "Fire Brigade" and "Metro-Goldwyn-Mayers, Coast to Coast", and will be used to transport the motion picture films from Los Angeles to New Orleans where the picture will be exhibited, and thence on to New York where it will be released for public exhibition.

The car is made to resemble one that is used by a chief of a fire department, and it is equipped with "S and M" red safety

Car Designed to Carry "Fire Brigade" Film From Coast to Coast.

lights on the windshield and on the head-light tie rod. The city of Los Angeles, whose apparatus appears frequently in the picture, "The Fire Brigade," is one hundred per cent equipped with the safety lights manufactured by the S and M Lamp Company, and when the picture is exhibited, it will give one a clear idea of the high visibility of the lights.

Merger Asked by New Jersey Firemen

In a talk at the opening of the forty-ninth annual convention of the New Jersey State Firemen's Association at the Steel Pier, Atlantic City, on September 24, General Bird W. Spencer of Passaic, and president of the association, virtually demanded a merger of all the rival firemen's relief associations in the state. The president also recommended that pensions be provided for aged volunteer firemen of the state, the funds to be taken from the relief treasury. He said that it is the duty of the group to take care of the aged firemen. Mr. Spencer said that the various associations in the state were battling each other and as a consequence, the widows and the children of the dead veterans have to bear the natural result of the squabble.

A very eloquent talk was delivered by Edward Caspar Stokes, former governor. In the absence of the mayor, the address of welcome was made by Rev. Robert A. Elwood, and the director of public safety, William S. Cuthbert also welcomed the visiting firemen.

A motion was made that each of the member companies be assessed seventy dollars in order that the body may fittingly observe their fiftieth convention next year. Another resolution offered was that asking that the employers grant all former World War veterans a four-week vacation next year so that they could attend the convention of the American Legion in France. The matter of having the firemen exempt from the state tax was also discussed.

A delegation from Bergen county arrived at the convention in a special train, about three hundred strong, and a special train was chartered to carry the delegates back to their home city.

One of the purposes of the association is to care for the fund of $3,500,000 which is used for relief work for the firemen.

All of the officers of the association have been re-elected and are as follows:

Bird W. Spencer, president, Passaic: Chris H. Hasselbuhn, senior vice-president, Carlstadt; William Exall, secretary, Ocean Gate; Evans Benners, assistant secretary, Morristown; Ralph Holman, second assistant secretary, New Brunswick; T. Howell Johnson, treasurer, Bloomfield; Charles T. Burr, auditor, Bordentown. In addition there are vice-presidents for each county of the state.

New Jersey Fire Chiefs Hold Convention

The annual meeting of the New Jersey Association of Fire Chiefs was held on the Steel Pier, Atlantic City, N. J., on September 24, 1926.

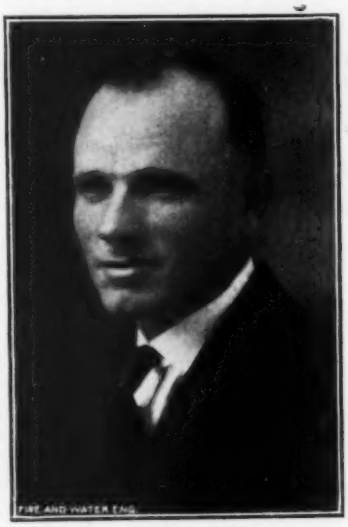
At this meeting, thirty-three new members joined thereby bringing the total membership of the association up to 603.

Reports of the various standing committees of the body were presented as follows: report on schools by Chief Harry Francis, New Brunswick; standardization by Charles Fischer and Mr. Cadman of the New Jersey Rating Bureau. T. Howell Johnson submitted a report on the membership. The following are the new officers of the association:

Charles W. Greenfield, president; Charles Nickerson, vice-president, Wildwood; George L. Mitchell, treasurer, East Orange; Fred A. Trowbridge, secretary, Morristown.

Beaumont, Tex., Chief's Career

Chief S. D. O'Conor who worked his way up to the position of chief in the Beaumont, Tex., fire department, has been somewhat of a rover prior to his settling down to the "calm" life of a fireman.



Chief S. D. O'Conor, Beaumont, Tex.

Since his graduation from the Baldwinsville, Mass., high school in 1903, he has roamed about at the dictates of his fancy. He spent several months in Bolivia, South America, but the people there could not develop a liking for him and he was asked to leave for other parts. In 1906, he met a man in New Orleans, La., who persuaded him to go to Beaumont, Tex., and work in the fire department. At that time the department consisted of two stations and the pay of the firemen was $45 a month with twelve hours off in every seven days. He worked there for about fifteen days during which time, they were called out to one fire. This life was too quiet for him.

Chief O'Conor roamed to Los Angeles, Cal., to Gold Field, Nev., and then developed a longing to return to Beaumont. Before he left Beaumont, they told him that once he tasted Neches river water, he would return—he did, the latter part of 1907. At that time the city had a population of 17,000.

He was made a captain of a new station in 1910, and was assinged as a lieutenant at headquarters, in 1913; he was promoted to a captain at headquarters in 1914, and made assistant chief in 1916. In 1918, he was made chief. The present population of the city is 50,000 and the department has seven stations, fifty-four men and fourteen pieces of fire apparatus.

Barre, Vt., Object to Digging Work—The four members of the fire department at Barre, Vt., abandoned their jobs in protest to being assigned to work digging ditches. They were ordered to dig a trench in front of the fire station for the installation of a fire alarm system and protested that the work was not in accordance with fire department regulations.

Modern Fire Alarm Signalling

Semi-Automatic Operation and Semi-Automatic Pedestals—Some of the Common Troubles and Remedies

By E. E. KEIRSTEAD, E. E.

THIS is the eleventh of a series of articles on the care, installation and repair of various phases of fire alarm work. The author has had practical experience in this field, and he will answer questions on this subject that are submitted to him by the readers, free of charge. The only condition is that a stamped envelope must be enclosed for reply.

Description of Pedestal

In figure No. 27 a semi-automatic operators' pedestal is shown and while it is one used in a very large office, it is illustrated for instructive purposes. The main part of the pedestal consists of the turret, and contains the small signal lights and the circuit controlling switches. In the view shown in this article the turret has sixty switches and sixty signal lights. The signal lights are also called pilot lights.

The rest of the equipment on the pedestal consists of a one circuit gong punch register and time stamp, one joker punch

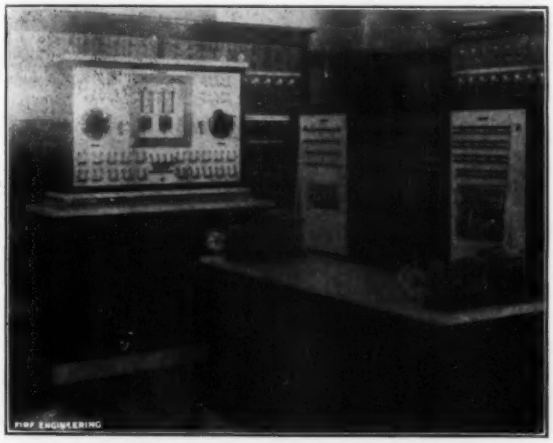


Fig. 26. Group of Instruments as Installed in a Large Central Office

register and time stamp, a twenty circuit closed multiple telegraph key for the joker circuits and a twenty circuit open multiple telegraph key for the gong circuits. The pedestal is also equipped with the necessary cut out switches for cutting any one circuit out of the pedestal.

When the switch on any one circuit is thrown into an operating position the switches on all the other circuits are automatically locked and cannot be put in a working position until the switch that is already down is reset. This prevents the jumbling of the alarm and makes the operation of the pedestal fool proof.

They are built up of a good grade of white marble and all exposed metal is of hard yellow brass finely polished or of laquered bronze. The pedestals are usually set in an art metal cabinet and they make a good looking addition to any office.

The cut out switches are of the pin type and it is possible to cut out any number of circuits on both the gong and joker operation.

The manual keys are made of a good grade of hard yellow brass suitably finished and polished. All contacts are of silver and the contact springs are of gold plate.

A terminal board is furnished with the pedestal which is attached to the bottom of the pedestal on the under side. It is to this terminal that all wiring for the pedestal is first attached. The binding posts are all marked and all wiring should be attached as shown by the prints furnished with the pedestal. It is rather heavy when all assembled and a suitable place should be provided for it.

Installation of Pedestals

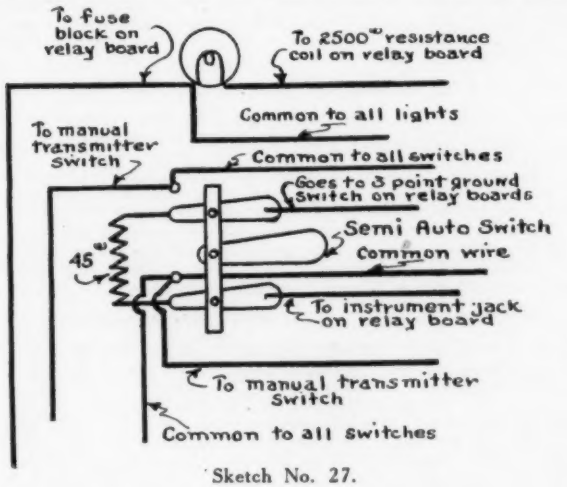
The pedestal should be located as near to the relay, gong and joker boards as is possible. The very fact that the operator has to see these boards when operating the pedestal is indicative of the reason for it being centrally located. If it cannot be placed near the relay boards, it should be near to the gong and joker boards. The joker repeater which is a part of the operating equipment can be placed anywhere convenient, and the same is true with the tapper repeater which in reality is a gong repeater. These instruments repeat the alarm over every gong and joker circuit in the same manner as an ordinary repeater repeats the alarm over every box circuit. The description of these instruments will be taken up in an article covering reneaters.

The wiring leaving the operator's pedestal goes to the following boards, and ducts or conduit lines will have to be laid to carry them from the pedestal to the protector, relay, gong, joker and storage battery boards. Wires also run from the pedestal to the joker repeater and the gong repeater. A local clock circuit also terminates here to control the time stamps and must be provided for.

The pedestal will be rather awkward to handle when received from the factory owing to its size, and special care must be taken in unpacking it to ensure that all cross supports have been knocked out, and all nails and screws removed so as not to scratch the marble finish.

After it is uncrated and taken to the spot where it is to be installed, it can be set in place and squared up with steel shims. The extra equipment that is in the cases can be mounted on the pedestal, and the terminal blocks can be attached to the base. These blocks are usually attached by means of steel angle iron supports. The supports are secured to the floor on one end, and the bottom of the under side of pedestal by the other. The terminal block is bolted to the supports which hold it in a rigid position.

Before running in any lines, it is good policy to go over all wiring and connections on the pedestal to see if any wires became loose in shipment. The soldered wires should be given careful attention in order to avoid trouble later on. The pin switches on the front of the pedestal should be given attention


To fuse block on relay board
To 2500Ω resistance coil on relay board
Common to all lights
To manual transmitter Switch
Common to all switches
Goes to 3 point ground Switch on relay board
Semi Auto Switch
Common wire
45Ω
To instrument jack on relay board
To manual transmitter Switch
Common to all switches

Sketch No. 27.

and tightened up, if any are loose. All excelsior and chips should be blown out with a bellows and the whole pedestal wiped clean.

Operation of the Pedestal

The pedestal is used for the semi-automatic transmission of alarms received from the street boxes to the engine houses on joker time only. The slow or gong time is not sent out from this pedestal, semi-automatically. The fast and slow time can be sent from this instrument by means of the manual multiple keys but is not done semi-automatically.

The operator receives the alarm from the street box and only allows one round to come into the office. The box is counted, and before the second round starts, the operator throws the switch on the pedestal corresponding to the circuit of the alarm that is coming in, and he allows the remaining three rounds of the box to go through to all the engine houses. The operator

has a visual indication of the circuit being used as the pilot light will be illuminated on the pedestal on that circuit.

The fast time alarm will be recorded and dated by the register on the pedestal as well as the gong alarm, regardless of the unit used to transmit it. The gong time can be set up and sent out on the manual transmitter or it can be keyed out from the pedestal, manually as desired. The switch on the joker board must be in the correct position in order to semi-automatically transmit the alarms. It is possible to transmit one alarm by the semi-automatic feature and set up a second alarm on the manual transmitter it then being necessary to transfer the gang switch on the joker board before starting the transmitter. It is possible to send out two alarms in a short space of time in this manner. The gong time will have to be set up on the transmitter, the same as is done on all gong alarms.

The manual keys are used on strike "outs" and any kind of special signalling where it is intended to transmit the taps to all of the engine houses at once. For traffic going to one or two engines it is possible to use the key on the joker or gong boards. It is faster and a more simple method than to plug out all the remaining circuits on the operators pedestal.

The small pilot light on the pedestal will stay lit until the relay board has been reset. It is possible for any number of alarms to come in and the lights on the pedestal will function properly on all of them; it is also possible to throw only one circuit in at a time. If any trouble occurs on the relay board annunciator magnets, the pilot light will stay lit until the trouble is cleared. It is sometimes easier to see the circuit in use from the operator's pedestal than it is from the relay boards. There is ample room on the operator's pedestal for a record book, and as the gong and joker registers and time stamps are located here, it is perhaps the best place to keep the book for recording alarms.

If it is desired, and the proper specifications are drawn, the manual transmitters can be placed on the pedestals so that the whole operating unit will be centralized. It then will be possible for an operator to transmit all alarms without leaving the pedestal except for transferring the method of operation or for signalling to the man at the street box. If it is desired, a clock can be set in the pedestal also for checking the time stamps and for making out reports.

If any additional apparatus is wanted other than that furnished on standard pedestals, it will have to be noted in the specifications, otherwise it will not be placed on the instrument. The standard specifications for operators' pedestals are given in the last part of this article and will have to be varied to suit individual requirements. A portable telephone set placed on the pedestal will allow the operator to be cut in on any line over the telephone circuits.

Semi-Automatic Operation of Office

The operation of a semi-automatic office is as follows:

The alarm coming in from the street box is counted and after the first round it is cut in on semi-automatic operation; the proper switch is thrown in on the pedestal so as to allow the alarm to go through the joker repeater, and from the repeater it is sent out to all the engine houses on the circuits.

The gong alarm is set up on the transmitters and it is sent out through the tapper or gong repeater to all the engine houses on each of the gong circuits. The gong alarm is not semi-automatic — it has to be set up on the transmitter.

Wiring on the Back of Operator's Pedestal

Our circuit comes into the pedestal from the test or instrument jack on the relay board and then to one side of the semi-automatic switch. If the switch is thrown into the working position, the circuit goes onto the left hand contact of the manual transmitter transfer switch on the transmitter. If this switch is in the proper position the circuit continues on to the master relay on the joker transmitter through the relay and back to the switch blade on the manual transmitter transfer switch marked No. 2 and back to the top contact on the semi-automatic switch on the pedestal on to the right hand contact on the ground switch on the instrument jack on the protector board and out through the pin switch to the line. This is the main line—all the others are local except the repeater lines. You can now see that the master relay works on the joker repeater and operates the individual relays which in turn operate the gong circuits.

The joker transmitter or repeater relay wires run from the armature and contacts to the transfer switch on the joker boards coming in as shown in the diagram shown in the article on gong and joker boards.

The semi-automatic local circuits which operate the pilot lights come from one side of the 110-volt line to the pilot light, and the other side returns from the pilot light to the 2500-ohm resistance to one side of the relay board bullseye light. This completes the circuit for the pilot lights.

The local circuit for the registers and the time stamps comes from the common side or top of the register switch on the gong or joker board. It goes to the register magnets and returns from the register magnet to the common side of the box line registers on to the common side of the transmitter, to the common side of the joker transmitter, to the master contact and on to the local battery. The complete gong register circuit will depend of course on whether you have an open or closed circuit system.

The joker manual key circuit comes to the pedestal from the No. 2 contacts on the transfer switch on the joker board and pass through the pin switches on the pedestal and on to the manual key.

The gong key circuit runs the same as the joker key circuit and in this particular diagram it is shown as an open circuit key. Figure No. 28 is a diagram of a large type of operators pedestal and it is given here for descriptive purposes; it is not to be used for the installation or repairing of any systems.

All of the circuits given above are shown in different kinds of lines to facilitate their easy tracing, and in places that are common, the wire leading out and away from the binding post should be the one followed. The manual transmitter, joker repeater and gong repeater will be taken up in future articles and at that time you will be able to follow out the circuit of every instrument.

All moving parts of the pedestal should be kept free of dust and dirt and the marble trims and sides of the pedestal should be wiped off daily. If you do not wipe off the marble it will in time turn yellow and will spoil the looks of the office.

Pedestal Troubles and Where to Find Them

Pilot lights will not light—Pilot light is burned out and needs to be replaced.

Bulls eye light on relay board out of order and needs to be replaced.

Fuse gone on relay board.

Wire open in common wiring on pedestal.

2500-ohm resistance on relay board open or burnt out and needs to be replaced.

Pilot lights stay lit—Board has not been reset—Reset the board to correct.

Signal not completed. See if light goes out when relay board is reset.

Line open inside or outside. Close line to correct.

Upper contacts stuck on annunciator contactors. Free contacts and clean up.

Alarm will not go through automatically—Manual transmitter transfer switch is set to use the manual transmitter and not the semi-automatic feature. Throw the transfer switch in proper position. Transfer switch on joker board is not in correct position for semi-automatic operation. Place switch in proper position.

NOTE: If you have thrown the semi-automatic switch on the pedestal on any circuit for an alarm of fire and you see that it is not going through to the engine house, throw the switch in an up position and stop the alarm from working the joker transmitter. Look at the manual transmitter transfer switch and see if it is set for manual transmission; also look at the joker board and see if the transfer switch is set on the manual transmitter position if not set it so. Go back to manual transmitter and set up alarm on joker side and let it go through as it should. Then send through the gong.

DON'T DO THIS IF IT CONFLICTS WITH THE ORDERS OF YOUR CHIEF OPERATOR OR SUPERINTENDENT OR ANY SET RULES OF YOUR DEPARTMENT.

Relay is open or stuck. If master relay is gone no joker alarm will go through. If one circuit only does not get through then relay on that circuit is in trouble.

Contacts dirty, stuck or open on master relay. If master relay works but no other relays work look for this trouble.

Instruments jack is open. If only one circuit fails look at this contact.

Tapper coils are open. Look over the tapper. Cut it out of circuit and test for open coil.

If tapper switch was in off position, resistance coil may be open. Cut tapper in circuit and see if it closes. If so replace resistance.

Manual keys will not send through alarm—If no alarm goes through at all. The transfer switch on joker board is not set for manual transmission. Set the switch properly.

If some circuits work and others do not work, look at the

(*Continued on page* 1060)

WITH THE EDITOR

The Big Opportunity. That the progress and growth in authority of the International Association of Fire Engineers have not progressed at a speed hoped for by the officers of the association since its incipiency cannot be questioned. Many factors were responsible for this, and principally the lack of funds. At this year's convention in New Orleans, which will be held on the 19th to the 22nd of October, the association will be standing on the brink of an era which, if the organization has proper guidance, can be made the greatest period in the life of the association.

The releasing of the motion picture film, sponsored by the association, now promises to result in a revenue which will make possible activities on a wide scale. Present estimates, and these are not considered excessive, are to the effect that the association will benefit by a sum not less than a quarter of a million dollars. Even if this amount is not realized, there will at least be a big increase in funds and which will make possible activities heretofore only dreamed of by those who have the affairs of the association constantly in mind.

Therefore what is done at New Orleans will have a tremendous effect upon the future of the International Association of Fire Engineers. This meeting will present the occasion when steps will have to be taken leading toward the future work of the association. If mistakes are avoided and efforts directed along productive lines, within a few years the association will place itself in a position where it will be considered the national authority on subjects relating to fire prevention and fire fighting.

Its change in name to the International Association of Fire Chiefs, which more clearly identifies its make-up, as well as the change in membership fee and the classification of its members would do a tremendous amount of good.

It is most essential that the association have means of bringing into its membership chiefs of departments who are unable to attend the conventions. Only by this means can it wield its influence in cities large and small throughout the country. The change in classification of members makes it possible for the non-attending member to interest himself in the work of the association and at a small membership fee which will attract a great percentage of those who heretofore have shown no particular interest in the work of the organization.

There is a lot of work ahead for the association, and especially for those among its membership who want to be classed as workers. Now is the time to get busy. Attend the convention if possible and hear what Herbert Hoover and other big leaders in the country have to say to the fire chiefs. Join in their deliberations and identify yourself with the big things the future has in store for the International Association of Fire Engineers.

To Ease Traffic Situation Each succeeding year finds the traffic situation far more acute; and each succeeding year brings forth an increased number of suggestions for remedying the problem.

It surely is not due to a lack of suggestions that the traffic problem has not yet been solved, for suggestions for its solution have been received from a wide diversity of sources and in many cases from men in a position to pass judgment on the subject.

Suggesting a method for solving the problem and carrying the suggestion to completion are two different things. It is easy enough to lay out a beautiful plan for removing the difficulties connected with traffic congestion but when it comes to enforcing such a plan, that is another story.

The gradually increasing per capita of population owning and operating automobiles is the key to the situation. Any regulations which are to be enforced and which deprive this great number of motorists of privileges are bound to stir up vigorous antagonism toward those parties enforcing the regulations.

Politicians are well aware of this and have shown themselves exceedingly reticent in enacting and enforcing traffic rules which would stir up the opposition of this very influential class of tax payers and voters.

Elsewhere in this issue appears a communication from James O. Schwank of the New York Fire Patrol. He offers an excellent suggestion for alleviating the traffic situation. However in his solution he probably goes a little further than most automobile owners would desire. He suggests that every car when parked or stopped along a city street—in the business or congested districts—should be occupied by either the owner, a chauffeur, or some other person capable of operating the machine.

Such a requirement would indeed be hard to have fulfilled.

A far better method to accomplish clearing of the streets of parked cars would be to provide parking spaces therefore, or through issuing of permits have such spaces or buildings provided by private capital. For instance, in one of the large New England cities there are several big parking garages equipped with inclined ramps which are capable of handling great numbers of cars every hour. Where cars are so generally used as in New York and other big cities it would be next to impossible to enforce ordinances prohibiting parking on streets unless parking places were provided.

The antagonism aroused would be too great to overlook — and politicians are not anxious to stir up such a widespread opposition as would be encountered in the passage and attempt to enforce such requirements.

A suggestion which will result in inconveniencing a large percentage of any city is apt to find overwhelming opposition and unless the suggestion includes an alternative to the privilege which is being withdrawn from the public such suggestion is not apt to make much headway.

A Mighty Fine Spirit

Just prior to fire prevention week the Fire Commissioner of New York issued an order at the request of Chief Kenlon directing some 500 firemen to report for parade drill on their off day.

The parade was to be one of the features of Fire Prevention Day observance in New York and it was figured that a good array of fire fighters would lend considerable interest to the parade and very forcibly call attention to the subject of fire safety.

Authorities of the fire fighter's union of New York strenuously objected to the men being called on their off-day, even though their service was to be of a nature highly valuable to the fire department and the public as a whole. No question was raised as to the desirability of having the firemen parade but a great furor was made in summoning them on an off-day.

The men, neverthless, in response to the order, assembled to the strength of about 500 at the armory assigned for them. Chief Kenlon appeared in person and told the men he had just heard of the objection raised by their union officers.

He stated his position and added that he had no desire to infringe on their rights and would therefore only use the services of those men who wished to volunteer.

He called for volunteers among those assembled.

The response showed just how high Chief Kenlon was held in the esteem of the men in his department and also showed the very high calibre of the rank and file in the New York organization for every man present instantly volunteered his services to the Chief.

Just running a fire department, and running a fire department in a manner that you will have the unqualified support of every man in it, are two different things. Chief Kenlon has a good reason to be proud of the personnel of his department, and, on the other hand, the members of the department apparently appreciate a good chief.

As a sequel to the story of Mrs. O'Leary's cow who kicked over a lantern which started the famous Chicago fire, might be mentioned a fire which occurred on March 15 near Glastonbury, Conn.

A woman was chasing a chicken into a barn near her home when the fowl knocked over a lantern in the barn—the lantern exploded and set fire to the barn. The fire spread rapidly and destroyed an automobile, a tractor, the barn and a tobacco shed. The firemen succeeded in keeping the fire from reaching the farm house. The wind carried sparks to a nearby dwelling, and for a time it was feared that the fire would spread in that direction.

This is the first tobacco shed to burn in a good many years minus the crop of tobacco. The crop of the five acre tobacco farm was sold two months ago.

Herbert Hoover to Address Convention

Unless something unforeseen develops to prevent his going to New Orleans, Herbert Hoover, United States Secretary of Commerce, will appear before and address the convention of the International Association of Fire Engineers at New Orleans. As now planned, a luncheon will be held Wednesday noon of convention week at which Mr. Hoover will confer with leaders in fire prevention throughout the country. This luncheon will be limited to officers of the Association, representatives of big national business clubs and special guests. But on Wednesday evening a banquet will be held at which all of the members may have an opportunity of hearing Secretary Hoover talk. It is expected that he will have a real message to deliver to the chiefs, and what he will say will well be worth paying attention to. Further details on Mr. Hoover's appearance will be given at the convention. Jay Stevens and Secretary Mulcahey constitute the committee which is arranging the program to accommodate the distinguished guest.

Herbert Hoover, United States Secretary of Commerce.

Our New Western Manager

To his great host of friends in the fire protection field, it will be good news to hear that Harold T. Murray will on October 15, join the staff ot FIRE ENGINEERING as Western Manager. For the last five years Mr. Murray has been with the Foamite-Childs Corporation of Utica, N. Y., as advertising manager, sales promotion manager and assistant general sales manager. He has resigned from this firm to become associated with the Case-Shepperd-Mann Publishing Corporation, New York, publishers, of this journal.

Harold T. Murray.

Previous to his connection with Foamite-Childs Corporation, Mr. Murray was sales manager of the Certain-teed Products Corporation at New York and with the Osgood Company of New York and Chicago. He will make his headquarters in Chicago.

DELAY IN ALARM CAUSES HEAVY LOSS—DRILL AVERTS PANIC IN BIG FIRE

Loss of Life in Chicago Fire Prevented by Orderly Exit of Employees—Attempt by Workers to Extinguish Fire Causes Delay

THE fact that the two hundred odd employees of both sexes of the Allen B. Wrisley Company, soap manufacturers, Chicago, Ill., had been frequently and thoroughly schooled in the fire exit drill, is probably responsible for many of these men and women being alive today. They had hardly settled down to work after a fire drill called shortly after commencing work on the morning of September 27, when the second ringing of the fire bell in the factory startled the workers, and while they waited in indecision, the bell clanged frantically again. By this time smoke had begun to filter through the floors, and for a moment panic seemed imminent. Then cooler heads and the discipline bred through countless drills for just such an emergency began to prevail. In a very short space of time all had marched safely and in orderly manner out of the burning building.

A Close-Up of the Chicago Soap Factory Fire After the Floors Had Fallen. Note the Evidence of Intense Heat Within the Building

Apparently the employees of the soap factory had made an attempt to extinguish the blaze before calling the department, as the fire was well advanced when Battalion Chief Joseph J. Graham, of the 25th Battalion, arrived with the first companies, after a still alarm given by the fire alarm office was received at 10:04 a. m. According to his statement, smoke was seeping through the north wall at the second and third floors and fire had extended through to the third floor rear. The fire originated in the northeastern portion of the second floor, it is thought, from a cigarette butt carelessly thrown among some rubbish.

The building involved was a six and seven story brick structure, of heavy interior construction, 125 x 105 feet, and about 40 years old. There were two open freight elevators extending up through the center, and four open wooden stairways. The floors were cracked and were saturated with oil, grease, tallow, etc. The section in which the fire started was used for paper carton storage, and the fire found its way readily through the cracks in the floor to the story above. It seems certain, according to Chief Graham, that the fire doors were open above and facilitated the rapid horizontal spread of the fire, permitting it to gain access to the large open elevator shaft, thus, in an incredibly short time, involving the entire building.

Chief Graham was the first general officer to arrive with one engine company and a hook and ladder. He immediately pulled box 69, bringing three more engine companies and another hook and ladder.

Chief Graham ordered the first engine to stretch up the interior front stairway and work through the fire door into the section in which the fire was burning. The second engine company he sent to the third floor, via the front stairway; the third up the rear fire escape to the second floor, and the fourth, to the third floor rear. The aerial hook and ladder company was ordered to the rear to rescue an employee who had returned after marching out and had been trapped on the fifth floor by the flames. This rescue was effected by means of the 85-foot aerial.

The third alarm was sounded at 10:13 a. m.; first special alarm at 10:26; second special, 10:28; third special, 10:37; fourth special, 10:37, and fifth special, 11:14.

In describing the fighting of this fire, Battalian Chief Graham writes: "The building had a 125-foot frontage on a 60-foot street, and extended 105 feet back to a 45-foot railroad track, separating a two-story freight house. There was a space of 35 feet to the north between the factory building and a three-story brick one, and 60 feet to the south, separating a three-story apartment building. All of these structures were factors of accessibility, and proved good vantage points to operate high caliber streams to the upper floors of the burning building from surrounding roofs, in the rear and on both sides. Two fireboats helped supply the large 2-inch nozzles on the mounted turrets and the water towers. The river being 600 feet directly west, seven large mounted turrets and two 65-foot water towers, besides deluge sets on the surrounding roofs, were furnished with powerful streams from the boats, which, under the existing conditions, proved highly effective.

"The apparatus consisted of forty Ahrens-Fox and Seagrave pumpers, five hook and ladder companies, and three squad companies, and the personnel included Chief Arthur Seyferlich, three deputy and three battalion chiefs, with 260

Fighting the Big Fire in the Wrisley Soap Works, Chicago, Showing the Powerful Streams from Water Towers and Turret Pipes, Supplied by Two Fireboats in the Chicago River

officers and men. Approximately 55,000 feet of 2½, 3 and 3½-inch hose was stretched, 12 double hydrants, of 2½, 4 and 4½-inch, being available, with a pressure of 23 pounds.

A Striking View of the Big Chicago Soap Factory Fire, Giving a Vivid Idea of the Huge Flames Arising from the Highly Inflammable Material Involved

Fifty engine streams were thrown, the maximum number in use at one time being 20."

The value of the structure involved was estimated at $160,000 and that of the contents $460,000. The loss in both cases was total, bringing the damage up to $620,000.

FIRE DESTROYS LUMBER YARD IN THREE ALARM WORCESTER BLAZE

Number of Oil Tanks Nearby in Danger—Heavy Pall of Smoke Hamper Firemen in Their Work—Three Alarms Sounded

SOME one who may have been under the influence of liquor and who was careless with a pipe that he was smoking, is believed to have been responsible for a three-alarm fire in Worcester, Mass., that caused a $200,000 fire in the lumber yard of the Baker Lumber Company, and for a while endangered a number of oil tanks nearby. The tramp theory is substantiated by an empty bottle and a can of tobacco that was found later near one of the piles of lumber.

A policeman in passing by the yard noticed a small flame near a lumber pile and attempted to get into the yard to investigate and extinguish it. The yard was locked and it was impossible for him to gain access; he yelled to the firemen of the fire headquarters—the station is near the yard. A bell alarm was then sounded and it was soon followed by a second and then a third alarm.

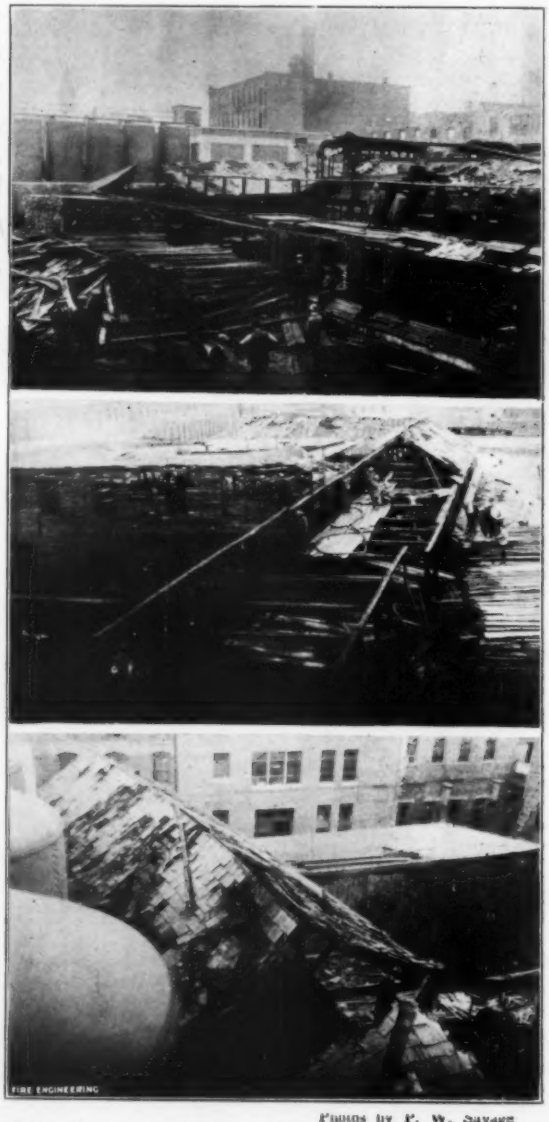
The policeman's alarm brought a hose company and before they had a chance to do anything, other companies were responding in answer to the bell alarm, under the command of Deputy Chief Spooner. He ordered the men to wet down a number of oil tanks adjacent to the lumber piles, the paint of which was commencing to blister from the heat. Four minutes later, the deputy chief turned in a second alarm and it brought Chief Charles L. McCarthy who immediately ordered a third alarm. Many of the men on the off-shift responded when the third alarm was sounded.

Many lines were laid from the high pressure hydrants, and a number of deck guns were used. The first alarm was sounded at 8 o'clock, and it was not until 12 p. m., that some of the companies were ordered to return to their stations, although many of the men directed hose streams on the lumber piles all night long.

The proximity of the oil tanks made the danger from the fire greater; had the tanks boiled over, it is probable that a conflagration would have occurred that would have wiped out that section. The quick thinking on the part of the commanding officers, avoided the spread of the blaze in that direction.

During the progress of the fire, a practical demonstration was given of the practicability of the radio, and of the large number of applications possible. It is the custom for one of the newspapers to broadcast news items from the radio station, and they announced the progress of the fire. When an announcement was made over the radio that a three-alarm fire was in progress at the lumber yard, the firemen on the off-shift immediately responded to the scene. It was estimated that there was a 100% response by the members of the off platoon.

The local Red Cross unit was immediately mobilized and stood



Photos by P. W. Savage

Three Views of the Fire in the Baker Lumber Company's Plant, at Worcester, Mass., Showing the Flimsy and Inflammable Structures Involved with the Additional Hazard of Huge Lumber Piles

ready to give assistance if needed, although six firemen received minor injuries during the fire, the Red Cross was not needed.

ARTHUR B. WHITE

WHAT'S BURNING

THE following list includes fires of $25,000 loss and over in the United States and Canada, for the periods designated in the headings. These figures, compiled from telegraphic reports, are based on estimates made at the time, and are subject to later investigation and consequent revision. Taken as a whole, however, they give an approximately correct view of the losses incurred. The figures represent loss in thousands.

Week Ending Sept. 24

NEW ORLEANS, LA.—Four turpentine tanks at Gulf Naval Stores plant 40
TEWKSBURG, MASS.—Barn and other buildings of M. G. Rogers five miles north, destroyed 25

Effective Fire Lines Established at New York Fires.

The excellent cooperation of the New York City police department in establishing rigid fire lines, is in a measure responsible for the ability of the fire department to work unhampered by the onrush of thrill-seekers. This is a photograph of a 4-alarm fire taken from one of the tall office buildings and shows the absence of the crowds from an area at least one and one half blocks from the fire. There are many cities where the fire lines are not so effectively established.

GLENCOE, ILL.—Residence under construction for M. N. Rothschild 80
PHILADELPHIA, PA.—The Friehofer Bakeries, northeast Phila. 170
ELIZABETH, N. J.—Four newly constructed two family houses, South Elizabeth 25
INSPIRATION, ARIZ.—Eagles' Nest Dormitory destroyed 25
SKANEATELES, N. Y.—Three barns on farm of Fred. J. Cady destroyed 40
HUGO, OKLA.—Five business establishments destroyed 65
GILROY, CALIF.—Warehouse of Gilroy Commercial Company destroyed 100
CAMDEN, ARK.—Handle factory owned by Arthur Lelatierre. 40
MOBILE, ALA.—Building occupied by Nack Auto & Carriage Works 80
RIDERWOOD, ALA.—E. E. Jackson Lumber Company damaged 80
PHILADELPHIA, PA.—Two concessions and another feature damaged at Woodside park 40
MONT EAGLE, TENN.—Auditorium Building of the Mont Eagle Assembly 40
HOLMES PARK, MO.—Power Plant of the Excelsior Powder Mill 80
BAINBRIDGE, IND.—Miller elevator and surrounding property 25
AUBURN, KY.—Three business buildings destroyed 25
HILLSBORO, TEX.—Browning Flats destroyed 40
SOUTH BEND, IND.—Berman and Green Buildings damaged .. 30
MASON, N. D.—John Miller Grain Company elevator destroyed 25
LENNOX, CALIF.—Three business establishments 40
UKIAH, CALIF.—Mendocino County Courthouse damaged 65
CHICAGO, ILL.—Factory of John Eiszner Cooperage Company. 40
OIL CITY, LA.—Two and one half blocks in business district destroyed 640
ST. BENEDICT, OREG.—Eight buildings at Mt. Angel College. 425
SAN JOSE, CALIF.—Alliance Building, 3rd & Santa Clara Sts. 25
SALEM, S. D.—Evers Department store damaged 25
LOS ANGELES, CALIF.—Memorial Baptist Church damaged .. 40
EASTON, PA.—Field Building destroyed 250
CHICAGO, ILL.—Two floors of dental school, University of Ill. 40
LAKEWOOD, N. J.—Sunset Lodge owned by Mrs. Jessie Reynolds 25
DULUTH, MINN.—State Hotel burned 25
WARRENSBURG, N. Y.—Five buildings in business district ... 125
RED BAY, ALA.—School buildings, business establishments and residence 25
MONTGOMERY, ALA.—Piggly-Wiggly Stores, Plaza Theatre and several other buildings 80
HENDERSONVILLE, N. C.—Residence of J. L. Southers, Druid Hills 25
RAYMOND, WASH.—Quinault Lumber Mill destroyed 370

Fire Loss Week Ending Oct. 1.

ROSEVILLE, CALIF.—Sacramento Olive Company destroyed .. 40
PLANT CITY, FLA.—Electric sub-station of Coronet Phosphate company at Hopewell Mines 25
OSSINING, N. Y.—Barn and three adjoining buildings destroyed 40
ASBURY PARK, N. J.—Milling Plant of Green, Hagerman Lumber Co. 100
LEICESTER, N. Y.—Curtis Brothers Corp. canning plant destroyed 40
WEST PATERSON, N. J.—Mills of Bender Box Products Company 40
ST. PETERSBURG, FLA.—Third floor of Peninsular Telephone Company 210
OVERLAND PARK, MO.—Four business establishments destroyed 50
DUNNEVILLE, ONT.—Flour mills of O. E. Wilson destroyed .. 25
HARRODSBURG, KY.—Ten horses, barn and equipment of Co. E. H. Gaither 50
ZIESING, W. VA.—Stores and residences destroyed 65
LA JUNTA, COLO.—Warehouse of Denver Milling & Alfalfa Products Co. 25
ROCHESTER, N. Y.—Section of Brook Lea Country Club 55
WOODLAND, CALIF.—Carter Hotel and surrounding property 175
CARUTHERSVILLE, MO.—Storage unit of Southeast Missouri Compress Company destroyed 180
HASTINGS, NEBR.—Queen City Confectionary destroyed 30
WARWICK, R. I.—Summer home of H. C. Hardy of New York. 25
COVINGTON, KY.—Plant of Moeschel-Edwards Corrugating Company 65

(*Continued on page* 1059)

Fire-Fighting is Not Very Different in England.

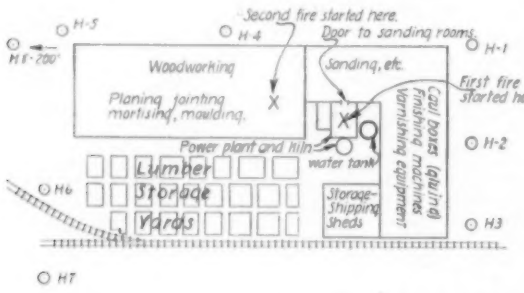
With the possible exception that the English apparatus is designed along different lines, the photograph illustrates that there is not a great material difference in the manner that the English firemen use in fighting fires, from those used in the larger cities of this country. Over thirty pieces of apparatus were called to this particular blaze, and it was necessary for the firemen to use gas masks in order to fight the fire which started in a paint factory. Note the large crowds in the rear watching the firemen and a line of hose being raised to the building opposite, from which the fire will be fought.

Dust Ducts Cause Loss of Furniture Plant

Evidence Showed That Fire Spread to Different Points Through These Ducts and Through Improperly Protected Hoppers—How Fire Was Fought

THE fire described in the last issue of this journal is one the handling of which is hard to criticize. The absence of information on certain features in connection with the fire prevents the making of definite suggestions as to how the handling of the fire might have been improved.

As shown in the sketch of the plant and the ground plan herewith the establishment was engaged in the manufacture of



furniture. The plant covered a large area and was at the time of the fire in very bad "housekeeping" shape.

The presence of so many dust ducts which were employed in carrying sawdust, shavings and wood dust from the various woodworking machines to the boiler room as well as the imperfect type of hoppers used probably had more to do with the fire than the description of the fire as appearing in the last issue of this journal seems to indicate.

These ducts ran from the collector located near the boiler room to all parts of the plant. And due to the fact that the vacuum system was out of commission shortly before the fire, there was likely a lot of dust in the various ducts.

As described in the story of this fire, the response to alarms in the city in which the fire occurred was as follows: First alarm Engine Companies Nos. 1, 2, 3, Hose Co. No. 1 and Ladder Co. No. 1 (City Service Truck).

Second alarm Engine Companies Nos. 4, 5, and 6, Hose Co. 2 and Ladder No. 2 (aerial truck).

Third alarm Engine Companies Nos. 7, 8 and 9, Hose No. 3 and Ladder Co. No. 3.

The Fire

The fire started late in the afternoon, while the factory was still in operation, at the point shown in the ground plan. This was at the shaving bin at the rear of the power plant. The fire secured a fairly good start but an alarm was transmitted by a box without delay once the fire was discovered, bringing in the first alarm assignment consisting, as noted above, of Engines 1, 2 and 3, Hose 1 and Ladder 1.

Engine Co. No. 1 was stationed at Hydrant 1 and a single line stretched to the doorway leading from the sanding building into the power plant. This line was operated with a 1¼-inch nozzle.

Second engine station at Hydrant No. 4 and a single line stretched to the same point.

The third engine was placed at Hydrant No. 2 and stretched a single line to the rear of the power plant, operating on the fire from this point. These three lines after operating for about fifteen minutes had the fire well under control so that two engine companies returned, leaving the third company to wet down.

This was fully accomplished inside of an hour. At that time the remaining company returned to its station.

About 9 o'clock in the evening the watchman on his rounds discovered a second fire burning at the point marked "X" and labeled "Second fire started here," in the ground plan.

He pulled one of the boxes of the plant which was connected to the city alarm system bringing the first alarm assignment.

Before the apparatus arrived, however, fire had entered the second floor of this building and due to the fact that there was a large quantity of shavings around, the blowers having been out of commission for a part of the afternoon, fire quickly spread along the second floor. The department upon arriving stationed Engine Co. No. 1 at Hydrant No. 4, and stretched a single line up stairway to the fire.

It was seen at once that the line could not hold the fire so Engine Co. No. 2 was stationed at Hydrant No. 1 and Engine No. 3 at Hydrant No. 2. Both of these companies stretched in single lines by way of ladders to second floor.

After operating for a while and apparently getting the fire quite well under way another fire was discovered burning in the sanding building on the third floor. Apparently this fire had something to do with the other fire burning at the same time, for in both cases the fires originated at hoppers leading into the dust collecting system. This latter fire had been burning for some time after the fire department was in operation before it was discovered. Immediately upon discovery a second line was stretched from Engine Co. No. 1 to the fire on the third floor of this building. The operations in handling the fire from this point on will be found in the last issue of FIRE ENGINEERING.

Origin of Second Fire Unknown

As to what caused the second fire, nothing can be said. The watchman stated that he found it burning vigorously around one of the hoppers and spreading in all directions when he first saw it.

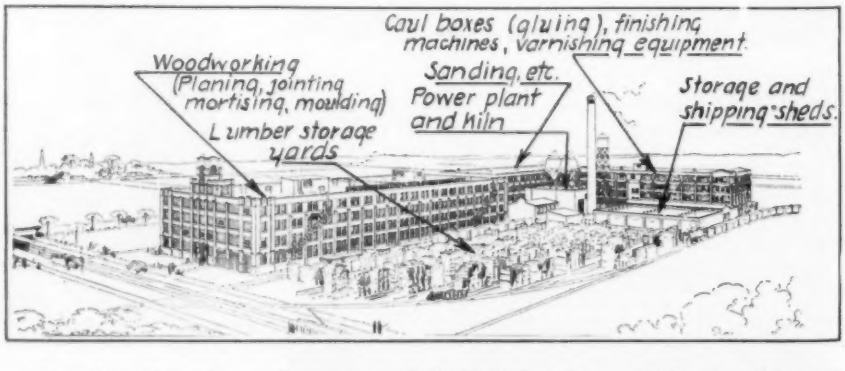
This hopper was located quite a distance from the dust collector and dust bins where the first fire occurred.

But here is a coincidence: While the second fire was being fought it extended to (or a third and independent fire occurred in) the sanding building on the third floor.

Now if these latter two fires had any connection with each other it must have been through the dust ducts or pipes. And this is likely where the responsibility for the second and third fire lies.

It is perfectly reasonable to assume that the fire which occurred in the dust collector and the dust bins reached the ducts which were directly in contact therewith. If there was a quantity of wood dust, chips or sawdust in these ducts there is no reason why the fire could not travel through them and eventually reach the points at which the second and third fires occurred.

As a matter of fact the plant closed down at 5:30 P. M. and it was not until 9 o'clock that the second fire was discovered. The period of time elapsing would be sufficient for a fire to burn slowly through the ducts to the two latter points; and this is very likely what occured.


Caul boxes (gluing), finishing machines, varnishing equipment
Woodworking (Planing, jointing mortising, moulding)
Sanding, etc.
Power plant and kiln
Storage and shipping sheds.
Lumber storage yards

Inquiry revealed that after the fire was out the company did not make a very thorough survey before returning to the station. No inspection was made of the dust piping or ducts

(Continued on page 1064)

QUESTIONS AND ANSWERS

Conducted by FRED SHEPPERD, B. Sc., M. E.

"He that questioneth much shall learn much"—BACON

NOTE—Readers of FIRE ENGINEERING are invited to send in questions, which will be answered in the order received. Names are omitted from questions unless otherwise specified.

Oakland, California, Lieutenant Questions

To the Editor:

The following is a list of questions given in lieutenants examination for promotion from hoseman some time ago in this city. Please publish these questions with the answers in FIRE ENGINEERING when you have the space.

1. What knowledge and qualification should a lieutenant of the fire department possess; what are his main duties?

2. (A) In directing men at a fire what are the main things an officer should bear in mind? State fully.

(B) Why is a fire considered a disease by some authorities and is destruction by fire considered preventable by modern authorities on this subject?

3. What are the principal modern devices that should be installed in a building for the purpose of preventing fires, confining and retarding the spread of fire and reducing the fire hazard in the building? State fully.

4. Suppose, upon arriving at a fire and extinguishing same you notice signs of incendiarism. Explain briefly what you would do.

5. Make a sketch outlining the fire limits of Oakland and mark the boundaries of the various zones.

6. State the various purposes for which life lines and hose lines are used at a fire, and describe the method of hoisting a line of hose to the roof of a building, and making fast a line of hose to a ladder.

7. Describe the various ways of rescuing a person from electric power wires, and first aid to the injured in electricity accidents.

8. Describe fully first aid to the injured from the various classes of burns and scalds.

9. (A) How many cubic inches in a cubic foot?

(B) What is the weight of a cubic foot of water?

(C) If the water tank on a pumping engine is 3 feet 9 inches long, 13 inches wide and 2 feet 5 inches high, what is its capacity in cubic inches?

(D) What is its capacity in cubic feet.

10. State the amount of ingredients used in charging a 40-gallon tank of a chemical engine, and give details in full on the operation of this tank at a fire, and the action of the liquid on a fire or contents of a building.

11. What are the relative advantages and disadvantages of such standard chemical apparatus, as compared with the booster tank mentioned in question 9?

12. What would be the friction loss per 100 feet of 2¾-inch hose for a flow of 400 to 700 gallons per minute?

13. Give the vertical distance and the horizontal distance in number of feet from the nozzle of the effective reach of fire streams with a pressure at the nozzle of 50 pounds, using 1-inch, 1⅛-inch, 1¼-inch, and 1½-inch nozzles.

14. State the kind and amount of ingredients used in charging a 40-gallon Foamite tank on a chemical engine, and give details in full of the operation of this tank at a fire and the action of its contents on a fire; also the object with which it comes in contact.

Very truly yours,

D. B. J.
Oakland, Calif.

Answer 1. The lieutenant of the fire department should have a full knowledge of the keeping of the company records; thorough familiarity with the rules and regulations governing the fire department; a thorough knowledge of methods of operating at fires, placement of lines, operation of apparatus, rescue of endangered persons in buildings on fire, and industries with which he is likely to come in contact.

The duties of a lieutenant responding to and at a fire are as follows: In going to and returning from a fire the lieutenant of an engine company (except when acting as a captain) rides on the engine. The lieutenant of a truck company rides on the turntable of the apparatus. In the absence of the captain he directs the driver.

When the first company to reach the fire grounds is in charge of a lieutenant, he assumes full command of the fire until the arrival of a captain or higher officer. If no company, other than those which lieutenants command, answer the alarm, the lieutenant first to arrive assumes command.

When he is operating under a captain, he sees that orders given by the captain are carried out, acting in the capacity of a foreman following out the instructions of the superintendent. The duties of a lieutenant around the station include the supervision of all station routine, under the direction of a captain, and the lieutenant must see that such routine is properly carried out. A lieutenant has access to all books and records of his company and should be thoroughly familiar with all the affairs of his company.

Answer 2. (A) In directing men at a fire the things which an officer should bear in mind are; Safety to the men, and efficient fire-fighting operation. It is assumed in this case, as no instructions have otherwise been given, that the things an officer should bear in mind pertain to the men under him rather than to the type of building or the problem he has in hand in the way of fire fighting operations.

In directing men at a fire it is up to the officer to see that they are not sent in or led in to a point where there is great danger such as beneath floors overloaded with merchandise or

Fig 1

Fig. 2.

weakened through exposure to fire. Prompt withdrawal of men from dangerous positions rests with the officer in charge. If a wall, for instance, appears to be on the verge of falling, it is up to the officer to see that the men are quickly called away to safety.

In directing men at a fire the officer must see that the streams are carefully and efficiently used. This entails the use of streams only when fire is encountered, opening nozzles only when fire can be reached with a stream, shutting off of streams after they are no longer required, keeping streams from doing unnecessary damage, and keeping the streams away from dangerous materials.

In directing the use of apparatus, the lieutenant assigned to a definite task has full responsibility in seeing that the apparatus is properly employed.

(B) Fire is rarely considered a disease by those familiar with it, although pyromania is commonly considered a disease.

Destruction by fire is in a large measure preventable. Proper building construction, properly enforced fire prevention measures and education on the subject of fire prevention would go a great way toward eliminating a large percentage of the fire loss.

Answer 3. The principal modern devices that should be installed in a building for the purpose of preventing fires, confining and retarding the spread of fires and reducing the fire hazard include the following: automatic sprinkler system, standpipe systems, automatic fire alarms, perforated pipe systems (for basement use or for use where automatic sprinklers would be unsuitable), wire glass windows, fire-resistant shutters, fire extinguishers suited for the special type of fire likely to be encountered, automatic vents where required.

Answer 4. If upon arriving at a fire signs of incendiarism are noted, these should instantly be called to the attention of

a superior officer. In the absence of a superior officer and if these evidences are likely to be destroyed in the operations of fighting the fire, they should be removed if possible and kept intact on apparatus for the inspection of superior officers.

It is very essential that signs of incendiarism be not disturbed if a superior officer would be available to inspect the same. A report on such is necessary in the event that you are the highest ranking officer at the fire.

Answer 5. This question, which applies only to Oakland, can best be answered from your fire department records.

Answer 6. The chief use for the life line is in effecting escape of those imprisoned on the tops of buildings or at other points. The life line is usually shot up to the imprisoned with a life gun. The life gun cartridge carries a small string up, which is attached to the life line. The life line is snaked up afterward and by means of this the people are able to effect their escape. Life lines are also used for other purposes besides rescuing those in danger, such as the various uses to which the ordinary roof rope is placed. In some departments the life line and roof rope are the same thing, the rope being used for a life line in connection with a cannister and life gun and used as an ordinary hose rope or ladder rope otherwise. The hose rope at a fire is employed in hoisting hose or ladders up the outside of a building, or it may be used as the means of escape for persons trapped on the roof or upper floors of a building. In all cases requiring its use, do not permit it to become tangled. Keep it evenly coiled on the reel, or keep it otherwise so that it can be readily uncoiled.

The following is a description of the method of hoisting a line of hose to the roof from the outside of a building: Assume the building to be six stories in height, which will require for use on the roof and on the street, six lengths. Couple these lengths together and stretch to the front of the building. Officer and all of the men except three who are left in the yard to attend to the hose and hydrant go to roof taking with them the following appliances: roof rope, hose roller, axe, nozzle. On reaching the roof place hose roller on cornice and make it fast with rope which is attached to hose roller for that purpose. Lower down roof rope. The man left in the yard fastens the rope around the hose, two feet from the butt, two half hitches and a binding knot, then the line is hoisted to the roof. Be sure to get two lengths of hose on the roof for working. Fasten the line below the cornice with a rolling hitch (four turns around the hose and a half hitch over all and a binding knot) and pull the roof rope back on the roof and make it fast with chimney hitch (one turn of rope around the chimney with two half hitches and binding knot on the rope), put on the nozzle if such is required in your evolution.

In making a line of hose fast to a ladder, hose straps are employed. The best type of hose strap is that which permits unfastening quckly. The hose is stretched up the ladder and if it is to be operated from the ladder, it is passed through between the beams and rung and fastened with a hose strap just below the point where it bends to go through the ladder. If the stretch down the ladder is long it may be necessary to put on additional straps — two per length to secure the hose in position. Hose should not be fastened in such a manner as to require time to unfasten it. This is necessary in the event that a quick shifting of the position of the line is required.

Answer 7. The following answer is taken from "Questions and Answers for Lieutenant and Captain," pages 56 and 57: Two conditions might arise where a person is caught on a live electric wire. The person might have hold of the wire with his hands or the wire might be lying across his body. The other condition is where the body is lying over the electric wire. In the first case it would be necessary to manipulate the wire away from the person, while in the second case it would be necessary to lift the body from the wire.

It will be assumed in either of the above cases that time is not available nor means at hand for shutting off the current promptly. Bear in mind that by touching either the wire or the person caught thereon you are subjecting yourself to the danger of being knocked out by the electric current. Do not handle the unconscious person with your bare hands, nor attempt to move the wire without properly protecting your hands.

Fig. 1 shows the method of breaking the wire from the unconscious person. In performing this work be sure to take a piece of wood which is not wet. A six foot hook is satisfactory provided the metal cap on the end does not extend down to a point where it will be touched by the hand of the person using it. Lift the wire away from the person and so secure it or fasten it that it will not spring back. Then remove the person to a safer point before making efforts to resuscitate him. Should the stick be wet, particularly with salt water, a severe shock would be experienced by the person using it. Dry wood is a good insulator and there is no danger to the operator as long as the wood is dry and as long as the operator touches only the wood.

Fig. 2 shows the method of removing the body from a live electric wire. In this case the piece of wood or six-foot hook is forced under the body and the body rolled to one side. As soon as it is clear of the wire the wire should be pushed aside and the body then removed to a point of greater safety and the operation of resuscitating him should be started. Should rubber gloves be available they might be used, but care must be taken that they are not wet and that there are no holes in them. Water or moisture passing from the surface through the holes to the inside of the glove and dampening the hand would close the circuit for the flow of electric current and might seriously injure the rescuer.

As to the treatment for electric shock, if an individual is in contact with a charged wire, first get him clear of the wire. Then if he is unconscious, apply artificial respiration, preferably of the Schaeffer or Prone Pressure methods. This is to be continued until the patient regains consciousness or until a physician has been summoned and is at hand. The treatment of electric burns depends upon the depth and extent of the area burned. For a burn of the first degree such household remedies as baking soda, cold cream or vaseline give relief. A solution of baking soda may be made in the strength of one teaspoon of soda to eight teaspoons of water. Cloths saturated with this solution are placed over the burned area. Any blisters may be opened with a needle. The needle must first be sterilized by passing it through an alcohol flame. Picric acid gauze is now used widely for burns. The gauze is saturated with a 5 per cent solution of picric acid. It is contained in a sterile package. Boric acid ointment is a soothing and satisfactory dressing for burns. Zinc ointment or an ointment of equal parts of boric acid and zinc ointment are excellent applications for burns. An extensive burn is best treated with an application of sterile gauze soaked with salt solution. The gauze must be kept constantly wet with the salt solution. If the fingers or toes are burned, a piece of gauze or lint must be placed in each interdigital space, otherwise as the burn heals the digits will adhere to each other and become webbed.

Answer 8. A burn is caused by contact with actual flame or with a hot solid object. Scalds are caused by contact with heated fluids such as boiling water, or heated vapor such as steam. The action of dry heat and moist heat upon the tissues is nearly identical.

The methods of treating burns which also applies to scalds, are given in answer 7.

Answer 9. (A) 1,728.

(B) 62.5 pounds approximately.

(C) The volume of the tank in cubic inches equals $45 \times 29 \times 13 = 16{,}936$ cubic inches.

(D) 16,936 cubic inches divided by 1,728 equals 9.801 cubic feet.

Answer 10. One common rule for the charging of chemical tanks is as follows: Tanks of different sizes are charged according to the following rule: 1/5 of the capacity of the tank in gallons is the number of avoirdupois pounds of commercial sulphuric acid required; 2/5 of the capacity of the tank in gallons is the number of avoirdupois pounds of bicarbonate of soda required.

As an example, a 40 gallon engine requires 8 pounds of sulphuric acid and 16 pounds of bicarbonate of soda for a charge. One manufacturer gives the following instructions on charging. The bicarbonate of soda should be thoroughly mixed in a bucket of water, preferably warm water, and poured into the tank. Next, open overflow valve of tank and fill tank with water until it runs out of the valve; then close the valve. Fill acid receptacle with required amount of sulphuric acid. Tighten receptacle lifter on jar. Turn dumping lever handle straight up; this will turn acid receptacle cage to a position to receive jar. Insert jar into cage being careful to get the rim of the jar beneath the lugs on the cage. Give jar one quarter turn. Hold dumping lever until permanent stopper is in place. Remove acid receptacle lifter. Screw stopper back into manhole cover and then place manhole cover on tank and tighten. Be sure there is a gasket in the manhole. Turn handle on manhole cover until stopper is firmly seated in acid receptacle. Give agitator handle a few turns to make soda solution.

This particular tank is operated as follows at a fire: Loosen handle on top of manhole cover, and turn until acid receptable stopper is lifted as far as possible. Turn dumping lever straight down; this dumps the acid into the solution. Give the agitator handle a few quick turns to mix the acid and soda solution, which will generate carbon dioxide gas creating a high pressure. When the pressure gauge shows 150 pounds or thereabouts, open the valve next to the tank, and the chemical solution will be

(*Continued on page* 1037)

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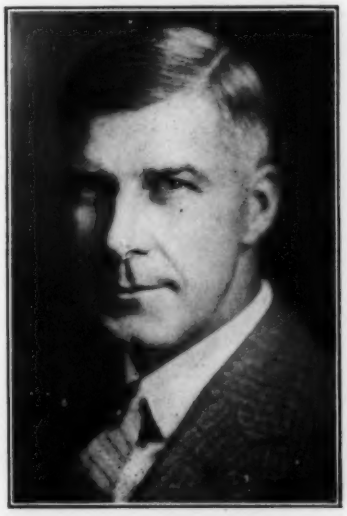

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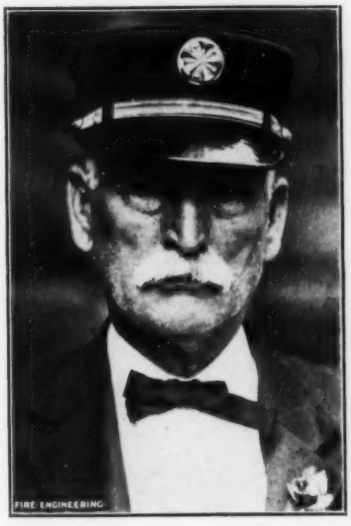

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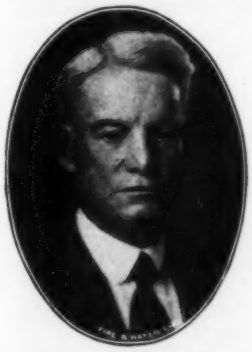

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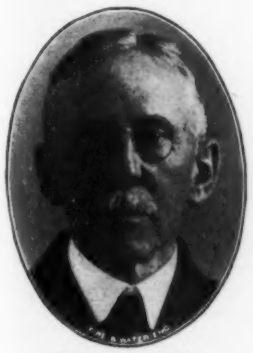

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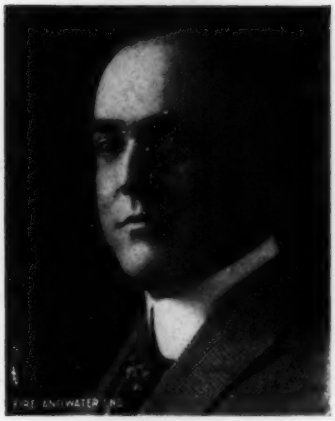

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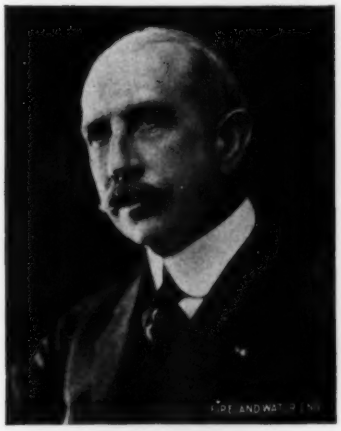

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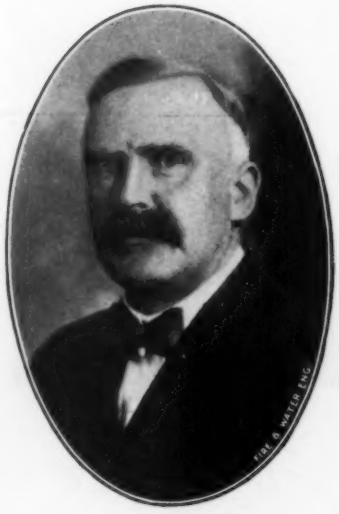

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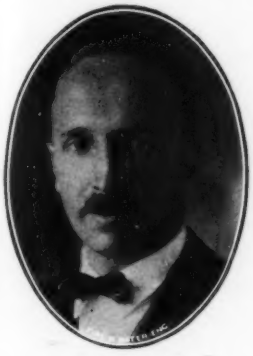

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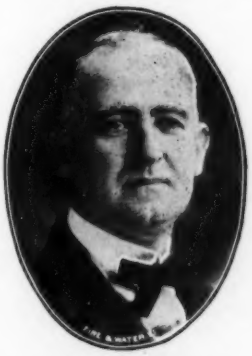

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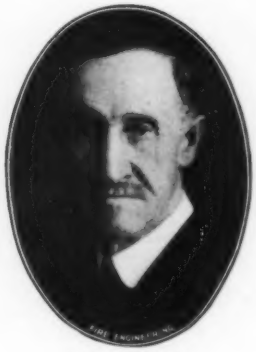

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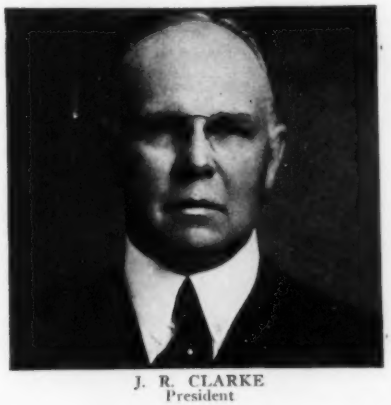

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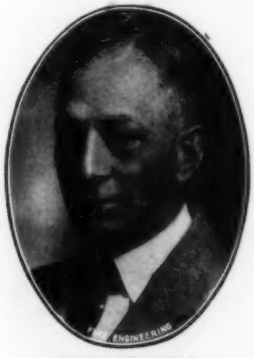

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Oakland, Lieutenant Questions (Q. and A.)

(*Continued from page* 1020)

forced in the chemical hose, provided the valve next to the chemical hose has been left open. Continue to agitate the solution from time to time while engine is in operation; this will tend to keep up the pressure and produce a more effective stream.

The action of the discharge from a chemical engine on a fire is about as follows: The fluid discharged may contain a trace of acid but usually has a predominance of soda. The stream in leaving the hose carries with it free carbon dioxide to the extent of approximately the volume of the water. Both carbon dioxide and liquid may strike the fire. The free carbon dioxide gas is usually quickly passed upward with the current of air following the smoke. Thus the extinguishing effect of the carbon dioxide gas is negligible.

The solution, however, has possibly a slightly greater efficiency in extinguishing fire than plain water though this difference is evident only in carefully conducted tests but not noticeable to even the trained fire fighter. The function of the liquid is to reduce the temperature of the burning material to a point below its reignition point. Water absorbs a great deal of heat while in its liquid state and upon being vaporized requires a very large quantity of heat to bring about this vaporization. This heat is furnished by the heat of combustion and if the amount of heat taken from a burning material is sufficient, the temperature of the burning material is reduced to a point below its reignition point and the fire is thereby extinguished. To describe the matter simply, the action of a stream from a chemical engine is practically the same as that from a water hose of the same nozzle diameter.

Answer 11. Numerous arguments are advanced both to show the advantages and disadvantages of each type of equipment in extinguishing fire. For the chemical apparatus may be said that it is comparatively light, comparatively inexpensive, and has proven by years of service to be thoroughly reliable.

The booster tank with pump attached thereto, is now generally considered thoroughly satisfactory. It carries the water along with it and can be quickly recharged, the pump giving whatever pressure is required. In other words a constant stream is claimed for this type of apparatus as against the comparatively limited period of time which a chemical engine can be operated without recharging.

The time required to recharge a chemical engine is considered a disadvantage particularly where only one tank is available. Advocates of the soda and acid tank point out the slightly greater extinguishing capacity that the discharge has over water, in view of the fact that it carries nearly an equal volume of carbon dioxide gas with it.

Answer 12. First reduce the 2¾ inch hose to the equivalent length of 2½ inch hose. This is done by dividing by 1.66, the factor for reducing 2¾ inch hose to 2½ inch. 100 ft. of 2¾ inch hose is therefore equal to 100 divided by 1.66 or approximately 60 feet of 2½ inch hose.

Friction loss for 2½ inch hose is as follows:

Flow in Gal. per Min.	Friction loss 100-ft. 2½ in hose	Friction loss 100-ft. 2¾ in. hose
400	36.2	21.8
500	55	33
700	105	63
600	78	47

The above figures for 2¾ inch hose are secured by multiplying the friction loss in 100 feet of 2½ inch hose by .60, the relative length of 2¾ inch hose having the same friction loss as 100 feet of 2½ inch hose.

For detailed methods of solving this problem as well as problem 13, the reader is referred to "Simplified Fire Department Hydraulics." This book contains detailed instruction in the derivation and use of various factors as well as the methods of employing them. Numerous illustrations are given to show application of formulas and factors.

Answer 13. Range of Fire Streams.

Nozzle Diameter	Vertical	Horizontal
1 in.	73 ft.	61 ft.
1⅛ in.	75 ft.	66 ft.
1¼ in.	75 ft.	69 ft.
1½ in.	79 ft.	75 ft.

All of the above ranges are for a nozzle pressure of 50 pounds as stated in the problem.

Answer 14. For details on the ingredients used in charging a 40 gallons Foamite tank you are referred to the Foamite-Childs Corp., Utica, New York. The functioning of the discharge from this type of extinguisher, which is made up of foam filled with carbon dioxide gas, is about as follows: Foam is sprayed to cover surface of burning material. This foam, being a good insulator as well as a first class fire extinguisher, completely smothers the burning material and protects the surface so that fire will not reignite. The gas in the bubbles of the foam is probably the best fire extinguisher known—carbon dioxide. As long as the foam stands up, the surface of the burning material is covered with a fire extinguisher which prevents reignition. Where the foam is used on the surface of burning oil it forms a blanket over the surface of the oil and keeps the air away from the immediate zone of combustion, thereby preventing combustion. The action of foam extinguishers may be summed up as follows: Foam which is produced blankets the burning material and thereby smothers out the fire.

Tenement Fire; Warehouse Equipment; Improving Company.

To the Editor:

I would like you to answer a few questions and will indeed be appreciative of your trouble.

1. You are in charge of the first company to arrive at a fire in an apartment house. State in order of importance the work which you and your company would perform.

2. What fire equipment should a strictly modern warehouse be equipped with?

3. What should be done in the fire house to improve your company in the methods of fighting fires.

Sincerely Yours,

P. W.,
South Norwood St., Philadelphia, Pa.

Answer 1: Question does not state on which alarm you respond, whether a still alarm or a box alarm. It will therefore be assumed that it is a box alarm.

The chief hazard in connection with apartment and tenement house fires is the life hazard. If the fire occurs at night when everybody is asleep, the danger is great. It will be assumed, for the sake of discussion, that the fire occurs at night. It will also be assumed that fire has gained considerable headway. These fires usually start either in the basement or under the stairs on the first floor.

Upon rolling in and noticing the seriousness of the situation, and bearing in mind the possibility of loss of life, the first thing to do is to transmit an additional alarm. This is on the assumption that fire has gained considerable headway and that more men will be needed for rescue work and fire fighting operations.

Stretch in two lines from your pumper, the first to cover the stairway door leading to the basement. The second line is to be stretched up the stairway if possible, and if not possible, to be operated up the stairwell until such time as it can proceed upward to check spread of fire. Assign one man if he can be spared, to go at once to the roof by the way of adjoining building if necessary and open up over stairwell. This is necessary in order to draw the fire up and prevent it mushrooming on top floor, where the loss of life is greatest in apartment house fires. It will be noted that it is assumed that you are in charge of an engine company, for this point is not specified in the question.

By the assignment of lines above given you will be holding the fire and incidentally making it possible to get the people out safely. If fire was permitted to continue to spread and all efforts devoted to saving people, it is likely that the fire would reach such a state that loss of life would take place before additional apparatus could be gotten into service. When the above lines are in operation and ventilation has been accomplished every effort should be devoted toward getting the people out of the building. If your work has been prompt and effective, the stairway will be available for this purpose as the stairhall will not be involved. First ladder company arriving can get ladders in position at the front and rear of the building to assist those imprisoned out, in the event that the stairway is impassable. Bear in mind the saving of the stairway will make it possible for the men to operate effectively as additional companies arrive.

If fire has reached such a state that the lines from the first company can make no headway against it, and if people are seriously endangered on the upper floors, then the first efforts should be made toward getting them to the street. This can be done by getting short ladders up to reach the fire escape ladders and having men go to upper floors to direct people to safety. In view of the lack of specific data in the question, this is about all that can be suggested for the operation of the first company.

Answer 2: A warehouse should be equipped with sprinklers, standpipes for operation by building employees or by fire department, iron shutters or wire glass windows where exposure is likely to be encountered from buildings burning alongside, and the necessary water storage tanks either of pressure or gravity

type as required by local ordinance. Fire axes and crowbars are also useful but should be kept where not accessible to minors.

Answer 3: Instruction of the men in the company is the most effective means of improving the company in methods of fire fighting. Such instruction, given by the officer of the company, makes the men familiar with reasons for the work they do and creates a general interest among them in their calling. Such instruction, to be fully effective, must include methods of using the appliances, methods of operating at fires, hazardous industries and chemicals, building construction, operation and care of fire apparatus and appliances, and an elementary knowledge of the hydraulics of fire streams. In the instruction on the methods of operating at fires, the steps taken in overhauling and reasons therefor as well as the reasons for ventilation, etc., should be fully outlined. The value of team work should be strongly emphasized and the necessity of discipline given full attention.

Derivation of Factor

To the Editor:

Your problem on engine pressure in the issue of December 23 has been milled over by members of this company and there are some questions which we would like to ask:

Why is 500 feet of hose divided by 3.6?
Why is 100 feet of hose on roof not divided by 3.6?
Where do you get 3.6?
Where do you get 1.1 plus 0.248 x 4.78=50 (1.1 plus 1.186)?
Where does 1.186 come in?
How do you figure friction loss in a 3-inch standpipe?
Can this problem be worked without higher mathematics?
Thanking you in advance, I am

Cordially yours,
F. W. W.
Temple Avenue, Detroit, Mich.

Answer. The question and answer as given in the issue of December 23 is reprinted below:

To the Editor: Please give me the solution to the following problem: What is the engine pressure with the following layout, not allowing for friction mark in bends and connections.

Height of building is 140 feet; 3 inch standpipe; two 2½ inch Siamese lines 500 feet each; 100 feet of 2½ inch hose with 1¼ inch nozzle on roof, with 50 lbs. pressure at the nozzle.

Hoping you will be able to give me this information at an early date, I am, Sincerely yours, P. S.

Answer: The first step in this problem is to find the nozzle pressure with the given layout of hose, and neglecting the standpipe friction as well as the elevation of the nozzle.

This is done by combining the two 500 foot parallel lines of 2½ inch hose and the 100 foot line 2½ inch hose on the roof, and taking into account the nozzle pressure at the 1¼-inch nozzle.

The next step is to reduce the parallel lines of the 2½ inch hose to a single line. This is done by dividing by the factor 3.6 or, by 500 divided by 3.6 = 139 feet adding the 100 foot line of 2½ inch hose we have a total length of 239 feet of single line of 2½ inch hose equipped with 1¼ inch nozzle and 50 lbs. nozzle pressure. This engine pressure is then found by multiplying the nozzle pressure by $(1.1 + 0.248 \times 4.78) = 50$ $(1.1 + 1.186) = 114.30$.

But this engine pressure must be corrected as it does not take into account the friction loss in the standpipe nor the elevation of the nozzle. The back pressure due to the elevation of the nozzle is found by multiplying the height of the nozzle above the street by 0.434 or $140 \times 0.434 = 60.76$ lbs.

To the engine pressure you must add the friction loss in the standpipe which can be taken at 25 lbs. Then the correct engine pressure is equal to $114.3 + 60.76 + 25$ or 200 lbs. approximately.

The factor 3.6 is explained as follows. In order to get the layout into the equivalent of a single stretch of 2½ inch hose it is necessary to combine the two parallel 500-foot lines. This is done by dividing by the factor 3.6 which gives us a length of 2½-inch hose single line having the same friction characteristics as two parallel lines. Where we have a single line of 100 feet in length on the roof, it is not necessary to divide this by 3.6 because 100 feet of 2½-inch hose is equal to 100 feet of 2½-inch hose. The figure 3.6 is secured by comparing the friction loss of two parallel lines of 2½-inch hose with the friction loss in a single line of 2½-inch hose.

The formula you refer to is an emperical one developed by the engineers of the National Board of Fire Underwriters for determining engine pressure where nozzle pressure and layout are known.

To explain the derivations of both the factor and formula would be quite a lengthy task and you are referred to "Simplified Fire Department Hydraulics," a book described elsewhere in this issue which gives in detail in a simple manner the derivation of formulas and factors and use thereof.

As to the figure 1.186, this is secured by multiplying .248 by 4.78.

The factor for a 3-inch standpipe is sufficiently near that for 3-inch hose so that it may be considered as 3-inch hose in working out a solution.

The Latest in Fire Companies

To the Editor:

We don't want to make anyone jealous, but there are a great many who would like to be chief of a department comprised of the type members in the picture which is illustrated.

Your particular attention is called to the very high (quality) hose on this truck. This hose is recommended for display purposes only, but is very fine for this purpose.

The uniforms are likewise attractive, and will be found very practical when working in the rain or in doing the fire department washing. We have neglected to recommend such suits to Mr. Barry of Cleveland.

While this is not the regular crew, it would not take much training to put them in "shape."

The occasion of this picture was a beauty pageant recently held in Sebring, and the representatives, from left to right

You Can't Blame Chief Altwater for Waxing Enthusiastic.

are:—Miss Jacksonville, Miss Pine Crest Lakes, Miss Sarasota (the winner), Miss Sebring, Miss Orlando and Miss Lake Wales. The truck was doing fire duty at the regatta at the lake when taken by the mermaids.

Very truly yours,
Chief A. C. ALTWATER,
Sebring, Fla.

More Money for N. Y. Fire Department.

The final New York city budget for 1927 has not been adopted but Fire Commissioner John J. Dorman and Chief John Kenlon have been assured that the New York fire department will be allowed the following appropriations for apparatus next year: The amount allowed includes $200,000 for replacements, $264,000 for additional apparatus, and $10,000 for sedans for some of the fire chiefs. This makes a total of $474,000 and is a distinct improvement over the allowances for the near 1926 which had no provisions for the purchase of new apparatus. The old fund, however, allowed $200,000 for replacements and $6,000 for a new tank truck for conveying gas and oil to the apparatus at fires.

Canadian Group to Visit Washington, D. C.

The Canadian delegation that will leave Toronto by special car on October 16 via the Canadian National Railway, to attend the convention of the International Fire Chiefs' Association at New Orleans, plan to stop off at Washington, D. C., for a sightseeing trip. The party will spend all day Sunday at the Capitol and will arrive in the convention city on the Piedmont Limited. The delegation will stop at the Hotel Roosevelt in New Orleans.

Scranton, Ia., Receives New Fire Apparatus—A new piece of fire apparatus mounted upon a Chevrolet chassis has been delivered to Scranton, Ia.

THE NEW UNIFORMS ADOPTED BY NEW YORK FIRE DEPARTMENT

First Change Since Civil War—Tight Neck Band Done Away With and Rolling Coat Collar Substituted—Text of Order

TO acquaint the readers of FIRE ENGINEERING with the new uniform adopted by the New York Fire Department briefly referred to in a previous issue, and for the benefit of those who have not been able to obtain a copy of General Order No. 68, which gives the full details of the change, this order is reproduced in full herewith. Owing to an unusual demand the copies of the order have become practically exhausted. The most striking change in the uniform is the abolition of the tight-fitting neck band and the substitution of a rolling collar on the coat. Instead of the familiar wing collar, an ordinary turn-down collar is also prescribed. The illustrations give an excellent idea of the changes from the old uniform, the first since Civil War times.

NEW YORK, AUGUST 30, 1926.

GENERAL ORDER NO. 68.

I Sections 138, 139, 140, 143, 144, the 5th and 7th paragraphs of Section 146, and all of Section 152, Rules and Regulations, 1912, are hereby revoked. The following new sections and paragraphs shall replace those revoked:

Cap for Summer Wear

Sec. 138. All Officers—Cap of double "London" shrunk linen duck made on haircloth frame 3¾ inches high, band 2 inches, quarters 1¾ inches, crown 9⅛ by 9⅛ inches, two covers for each cap, made detachable, sweat band to be of leather about 2 inches wide.

Chief officers' hats to be trimmed with gold braid, gold button on each side; Captains' and Lieutenants' with silver braid, and a silver button on each side, including Captains and Lieutenants of fireboats.

For all other members excepting those attached to fireboats:

Of United States army pattern, made of dark blue cloth, pure indigo dye, top 9 by 9½ inches, with band 1½ inches high, and quarters 1⅞ inches high, stiffened in front with haircloth sewed into seam of top and quarters; the top to have two small holes for ventilation, and to be lined with red silk, a narrow welt around bottom of band and top of seam of cap; the inner band to be of buckram; the visor to be plain, solid, black patent leather 2 inches wide with round corners, the chin strap of black patent leather, ½ inch wide with slide of same material, fastened to the cap on each side with a small regulation button.

For all members attached to companies on fireboats:

Winter Wear—Caps to be of regulation indigo blue cloth, 3 inches high, with slight bell crown, lower part of cap to have a mohair band 1½ inches wide, drooping patent leather visor 2 inches wide with bound edge and green color underneath; patent leather chin strap, with one small Department regulation button on each side. The insignia of rank, or cap badge, to be fastened to the front of caps in the same manner as at present.

Summer Wear—To be of same style, make and dimensions, but of lighter material and with ventilators on sides.

Officers on Fireboats—Caps to be of regulation white duck, removable or adjustable cover, same style and dimensions as caps for winter wear.

Coat

Sec. 139. Chief of Department—A double-breasted, close-fitting sack coat, made of dark blue cloth, pure indigo dye, weighing not less than 24 ounces to the yard; cut to button close to neck, with rolling collar, and to reach to a point midway between the hip joint and bend of the knee; to have eight medium sized regulation buttons on each breast, grouped in pairs; the cuffs to be made to fit the wrists and to be closed with three small regulation buttons; to have a pocket on the inside of each breast; the coat to be lined with red cloth or flannel, and the sleeves with linen. The prescribed insignia of rank to be placed in the end of collar on each side.

Deputy Chiefs of Department and Chiefs of Battalion—Same as Chief of Department, excepting that the buttons shall be placed equi-distant.

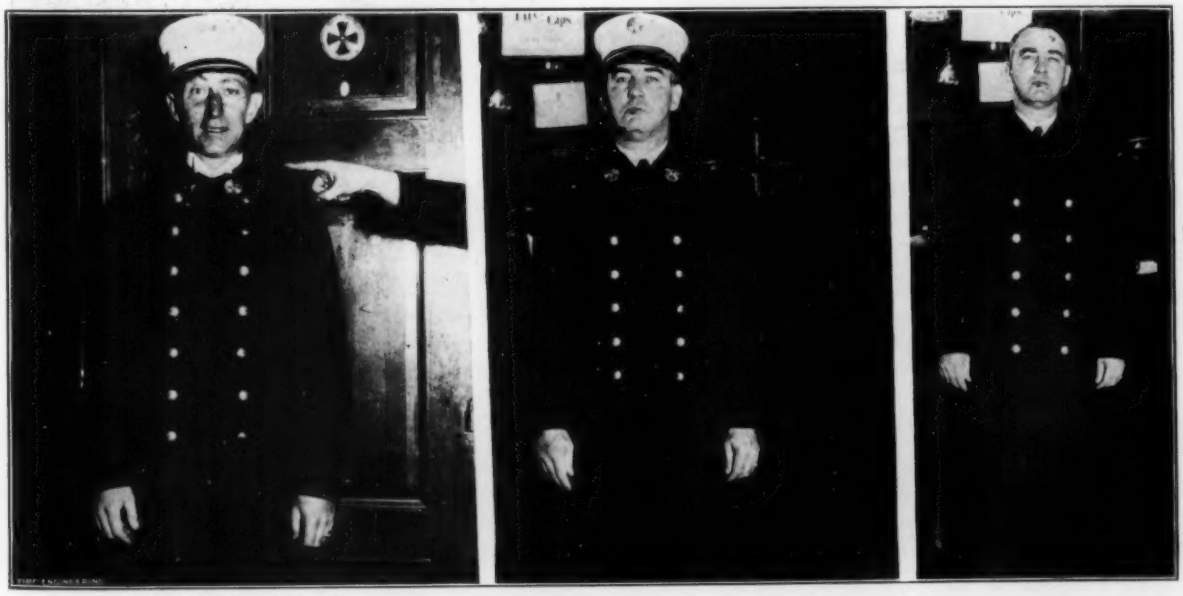
Company Officers—Same as Chief of Department, excepting that the buttons shall be seven in number on each breast, placed equi-distant.

Engineers of Steamer and all other members—Same as Company Officers, excepting that they shall be single-breasted and have six buttons.

Summer Wear—Chief of Department: A double-breasted close-fitting sack coat, open at front of neck, with notched lapels, of pure indigo wool dyed cloth finished flannel, weighing not less than fourteen ounces to the yard. Collar to be not less than 2½ inches in depth at rear, and not less than 1¾ inches at points of notch. It shall be cut to fit under overcoat, and in length it shall reach to the ends of thumbs. It shall have a seam in the back; all seams to be plain with quarter inch single stitched edges, and have six medium sized regulation buttons on each breast, grouped in pairs, to be spaced between 5¼ inches and 6 inches center to center, horizontally, according to size, the bottom button in no case to be less than 8½ inches from bottom of coat; the buttons on left breast to be countersunk. Sleeves shall be cut so as to be conveniently worn inside overcoat, with regulation fireman's single stitched cuff, having three small regulation buttons. To be quarter-lined, with one pocket on inside of each breast. Insignia to be worn at ends of collar, facing edge.

For all other Officers—The same as for the Chief of Department, except that they shall have five buttons on each breast spaced three inches apart, vertically, the bottom buttons to be not less than 8½ inches from bottom of coat.

For all Other Members—A light coat shall be worn, made of dark blue cloth finished flannel, pure wool indigo dye, weighing not less than fourteen ounces to the yard and in all other respects



The Old and New Uniforms of the New York Fire Department.

Left, Lieut. George Offenberger, Eng. Co. 8, N. Y. F. D., showing present-day style of closed neck summer jacket, soon to be discarded by the officers of the New York Fire Department. Center, Deputy Chief George L. McKenna, N. Y. F. D., showing officer's new summer coat adopted by New York Fire Department. Right, Deputy Chief George L. McKenna, N. Y. F. D., showing officer's new winter overcoat adopted by New York Fire Department.

as above prescribed for the cloth uniform except that it shall be single breasted, with six buttons and quarter lined.

Overcoat

Sec. 140. Chief of Department—A double breasted sack overcoat, of best 30 ounce dark blue cloth, pure wool indigo dye, open at front of neck, with lapels and convertible collar. (The collar shall not be less than 4 inches deep at rear; at points of lapels it shall have turned-in seams, handsewn, and, when converted it shall raise in the front only, and meet evenly at points of notch). Points of collar to be slightly rounded, and, when converted, shall cover top buttons of coat.

In length it shall reach to the knee, and shall be of weight and quality equal to the standard in the office of the Chief of Department; to have six large regulation buttons on each breast, grouped in pairs, spaced horizontally according to size, but shall be not less than 4½ inches apart, and there shall be a single large regulation button under each lapel to be used when coat is buttoned to neck; three small sized regulation buttons on each sleeve at the cuff which shall have ornamental double stitching.

It shall be lined throughout with scarlet cloth lining, weighing fourteen ounces to the yard, with fast black venetian material in yoke and sleeve lining; sleeves to fit snugly at wrists; edges and seams to be raw edge, with ½ inch double stitch; no outside pocket, but one inside of each breast, with one small cash pocket at lower left side; pockets to be piped in cloth tongue.

It shall be slightly form-fitting, with seam in the back, with center vent spaced from five to seven inches below the waistline, no hook or other ornamental stitching at point of vent. It shall be fitted so that the under coat shall be visible when collar of overcoat is open.

For All Other Officers—The same as for the Chief of Department, except that there shall be five large regulation buttons on each breast spaced approximately 4½ inches apart vertically.

For All Other Members—A double breasted sack overcoat of dark blue pure indigo wool dyed cloth, weighing 30 ounces to the yard of 54 inch width; buttoned to the neck, with six large regulation buttons on each breast placed equi-distant vertically; upper button on each side to be at point of collar-bone, the spread depending upon size of breast, but it shall not be less than twelve inches, and shall converge downward with reveres so that the buttons are not less than six inches apart, horizontally at botton; buttons on left side shall be countersunk. Collar to turn down, four inches deep all around; stand of collar 1½ inches in rear running to ½ inch in front; to fasten at points of notch with concealed hook and eye; corners of collar and reveres to be slightly rounded, but collar shall not cover top buttons.

The coat shall have reveres, front, sidebody and back; the back to be made with center seam, with vent 12 inches long, having no hook or ornamental stitching at point of vent; reveres sewed on.

In length it shall reach a point two-thirds between the hip and knee; to be lined with red cloth or flannel, stitched out on padding across front and back ¾ inch apart to waist line, with lining left open at bottom of front; one pocket on inside of each breast and one small inside cash pocket on lower left side, piped in cloth tongue. All edges and seams to be raw edged, ½ inch double stitched. Sleeves to be close fitting, with ornamental fireman's single stitching on cuffs, each cuff having three small regulation buttons. Coat shall be cut so as to be slightly form-fitting.

Shirt

Sec. 143. All Officers—Plain white linen or muslin, with white starched rolling collar (with cravat), of sufficient height to show at rear of overcoat collar; collar opening to be of medium width, except that for the period designated for the wearing of the summer uniform a semi-starched white rolling collar, with cravat, may be worn.

For Fire Duty in Winter; and at Night during other Seasons: A dark gray flannel shirt may be worn.

All Other Members—Dark blue flannel, double breasted, between September 15th and June 1st, except that between September 15th and November 1st, and April 15th and June 1st a dark blue flannel single breasted, with large rolling collar may be worn.

For Summer Wear: A dark shirt of lighter weight, with rolling collar of the same material.

Cravat

Sec. 144. All Members—Black silk or other black material of good quality, to pass around the inside of collar and tie in four-in-hand style in front.

Sec. 152. Uniform clothing of the type described below shall be worn during the periods named:

From April 15th to June 1st, and September 15th to November 1st—Cloth uniform coats, trousers and uniform caps.

From June 1st to September 15th—Flannel uniform coats, flannel or dark shirt, (white shirt—officers), cloth or flannel trousers, and summer caps.

From November 1st to April 15th—Overcoats, (with short coats for all officers), cloth trousers and uniform caps.

5th Paragraph Sec. 146. Captains of Companies attached to Fireboats—Two parallel trumpets, with bells downward, anchor between trumpets, company number above; to be in silver bullion, on dark blue cloth, surrounded with a bullion cord, size about 1½ by 1⅞ inches.

7th Paragraph Sec. 146. Lieutenants of Companies attached to Fireboats—One trumpet horizontally enclosed with a circle 1½ inches in diameter, bell to the left and anchor under trumpet; company number over trumpet in silver bullion on dark blue cloth, surrounded with a bullion cord. The device to be worn on summer caps shall read as above except "white duck" instead of "blue cloth."

Members may purchase uniforms or parts of uniforms wherever they wish, subject to the provisions of the regulations as to inspection.

These regulations shall be in full force and effect on November 1st, 1928. All new uniform clothing shall conform to the foregoing specifications.

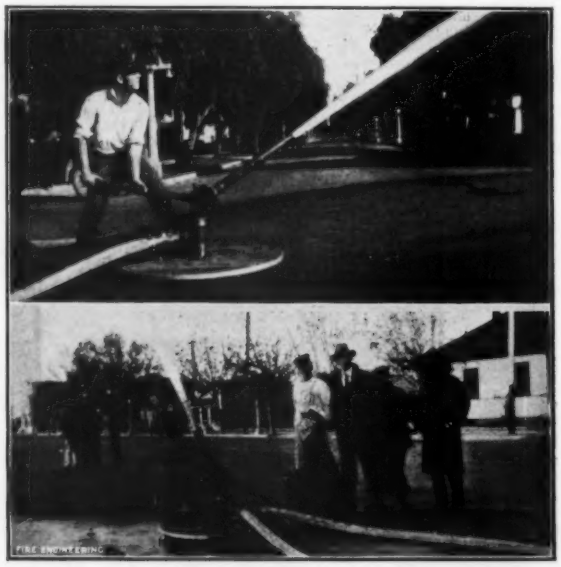
BY ORDER OF THE FIRE COMMISSIONER.

JOSEPH B. MARTIN,
Assistant Chief of Department.

"One-Man" Control Nozzle Developed

A monitor nozzle that is designed so that it can be controlled by one man has been developed on the Pacific coast by Wallace MacGregor. The nozzle revolutionizes some of the present methods of controlling high pressure lines.

The new MacGregor Portable Monitor and Safety Stand permits the firemen to place the stand in a convenient position so that a high powered stream can be directed to any target without the further assistance of more than one man.

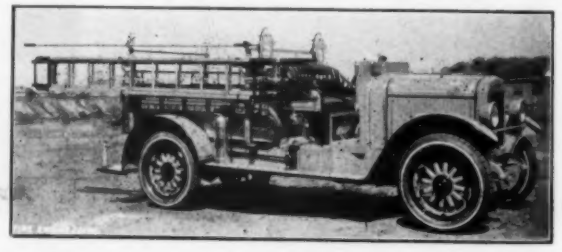


The MacGregor Nozzle Being Demonstrated.

Upper—Pasadena, Cal., hoseman turning the direction of the stream. The safety stand is firmly supported on the asphalt roadway. Lower—Chief Thomas R. Baird of Fresno, Cal., controlling the nozzle with one hand.

This stand will set where placed; on the asphalt street, lumber piles, concrete walks, roofs or any other place where needed and it can be left there to perform alone. The monitor can be turned 360° in a horizontal plane and 70° in a vertical plane. It requires no more than ordinary care; has no packing and is leak proof.

The inventor and manufacturer, Wallace Macgregor of Berkeley, California, has had many years of experience in the



Reo-Northern Pumper Delivered to Lyons, Kan.

A Reo 6-cylinder heavy duty unit speed truck equipped with a Northern rotary pump, type A, has been delivered to Lyons, Kan. The hose body has a capacity of 1,000 feet of 2½-inch hose, and the pump easily delivered its required capacity of 400-gallon a minute at the Underwriters' test.

handling of water. He is a prominent water engineer and has served mining companies in many parts of the world. His early experiences in this work proved the need of equipment that would lessen the danger to the men. The first bit of equipment he made along the lines of the present development, was a sort of a makeshift affair hastily made "on the job." From this early start has been produced a device which has stood the test of many California departments under all circumstances, the tests of the Underwriters and various other engineers. In each of these tests the monitor has surpassed not only the expectations and hopes of the persons interested but also greatly exceeded the degree of efficiency of the equipment used for comparison.

The first step toward the present monitor was the development of the Macgregor swing joint; then came an industrial monitor in two sizes to throw ½" and 1⅛" streams. These were permanently mounted on riser pipes from the ground or mounted on low towers; on roofs or inside of certain types of buildings. They are designed to permit of handling by one man and the nozzle will deliver water in a 360° vertical or horizontal plane. Several hundred of these industrial monitors are in successful operation protecting lumber yards, wharves and buildings. No packing is used in these fire guards. The swing joint without packing was the result of the demand from oil companies for a joint which would not leak and yet would not cause the usual troubles. The Macgregor monitors of this type are used to handle gasoline, kerosene and fuel oil.

Chief G. Sydney Rose of Berkeley, California, was probably the first chief to see the idea for high pressure work in industrial plant protection. He immediately saw the possibilities of this type of swing joint for fire department use and suggested a larger type of monitor or turret nozzle using the principle of the larger Macgregor swing joints, while being capable of handling several streams.

The Oakland Fire Department's New High Pressure Truck, which is now Macgregor equipped, recently used eight lines, in a test. Approximately 1,980 gallons a minute were delivered at an unusually high nozzle pressure. This stream was directed to almost the entire swing of the monitor by one man operating it freely with one hand. For several minutes the monitor was permitted to operate without any handling whatsoever, the stream continuing steadily where it had been directed.

Under the lower joint this portable monitor has a long radius elbow for easy flow of water up into the wide throat. Neither joint of the monitor has any packing of any nature and the parts are lubricated by Alemite fittings.

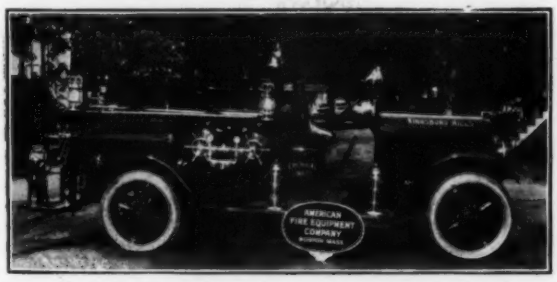
From the long radius elbow there is a cylindrical neck which fits into a socket bolted on the center of the safety stand. This neck can be locked instantly into the socket; or, the instant removal of the whole monitor from the stand is possible.

The safety stand itself, which has become of particular interest because of its ability to function unaided is made about 3½ feet in diameter and the under side is furnished with case hardened studs around the under circumference so the whole monitor and stand becomes stabilized wherever set. It is rubber covered and the handle is also similarly protected against high voltage currents that may make contact with a stream.

This stand can be folded up into a package of twenty-one inches in width. It needs no auxiliary legs or supports to assist the apparatus.

Some of the important features of this new monitor are instant lubrication without taking the monitor apart; leak proof; no packing required; easily handled; double duty; light weight; "one man" device; wide area of play; power of streams; safety to firemen.

A demonstration of the equipment has been arranged as a feature of the coming convention of the International Association of Fire Engineers at New Orleans.



Windsor Mills, S. C., Receives Chemical Car.

An American Fire Equipment Company chemical car has been delivered to Windsor Mills, S. C. It is equipped with four forty-gallon chemical tanks and has several portable fire extinguishers.

SMALL TOWN FIRE DRILLS RESULT IN EFFICIENT FIRE-FIGHTING

How Evolutions by Fire Departments in Small Communities Bring Out Men's Ability—Some Cases in Point

By CHIEF W. W. STEPHEN,
Fire Department, Southern Manganese Corporation, Anniston, Ala.

AMONG the most difficult and vital problems of administrating the affairs of a small town fire department is that of keeping the members interested in the organization and sufficiently well trained during times when working fires are few and far between. The writer, while in charge of several small departments, both on a non-paid and full paid basis, has found the following drill evolutions of much value in training and keeping up the interest of men when carried out at sufficiently frequent intervals, using some building for a drill tower when nothing else is available.

Chief W. W. Stephen, Fire Dept., Southern Manganese Corp., Anniston, Ala.

Number one—Lay 2½ inch hose line from apparatus, with plug man coupling to plug and nozzlemen pulling slack off hose body, when line has been laid, putting on nozzle and calling for water.

Number two — Take straight and extension ladders from apparatus, get in place and raise to building or drill tower.

Number three — Carry flat 2½ inch line up ladder to roof, window, or balcony, fasten to ladder with hose straps, also perform same with charged line with controlling nozzle closed.

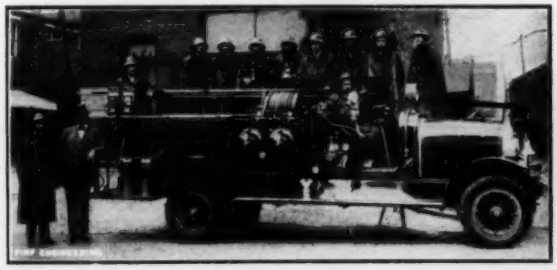
Number four—Unscrew tip from controlling nozzle, couple on section of 1½ or 1¼ inch hose, take nozzle of small line, preferably with control on this also, up ladder and start water by opening control of large nozzle.

Some Practical Results of Evolutions

These exercises were selected as the "boiled down" essentials of a number of drill evolutions we performed and used for several years, and with regard to their effectiveness in training men and keeping them interested, we have seen a number of fires very successfully fought by men trained this way, of which the following are a couple of fair and recent examples:

Applied to Fighting Fire in Brick Building

Case one, two-story brick building, with tin roof. Front por-



Nokomis Fire Department with Their New Pumper

The firemen of Nokomis, Ill., are proud of their new 350-gallon "Deluge Master" pumper which they received recently. It is equipped with two 35-gallon chemical tanks, and a hose body has a capacity of 1,000 feet of hose. Standing by the apparatus at the left of the photograph are Chief Henry Flesch and Mayor A. J. Eckhoff.

tion of first floor was occupied by a restaurant and rear portion by furniture storage.

Second floor was used as a rooming house, with middle hallway the whole length and rooms on each side. There was one exit to this floor, a stair leading down to a small corridor on the first floor, between the restaurant and furniture storage portion, with a door opening out the side of the building.

Fire, originating in the kitchen, when discovered at two a. m. had involved most of the restaurant and corridor behind it, had gone up stairway to the second floor and was rapidly spreading over the hallway there.

The occupants of the second floor were trapped in their rooms, but fortunately all except three persons in rooms on the side next to the only adjoining building, a one-story drug store and escaped through windows to roof of this structure. Persons in rooms on other side were brought down short ladders carried on fire apparatus, only two pieces of which were available for this small department.

Two hydrant lines were laid at first and taken into the side doorway, operating there until the fire was killed in corridor and on the stairs. One pipe was then taken up the stairway, pipemen operating stream up and down the second floor hall under severe stress from smoke. The other pipe was taken into rear of the restaurant and operated on main part of fire. Neither was able to advance further for several minutes. When rescue work was completed department laid a third line and operated stream into the front of restaurant.

Presently the heat of the fire broke out a glass skylight on second floor, just as a party had started to the roof to ventilate it, and partly vented the hallway, so that pipemen were able to advance and soon kill fire there and in several rooms where it had entered through transoms.

Two streams on the ground floor were able to overcome fire in the restaurant, after rear portion was gutted. Fire did not at any time get into the furniture storage in the back portion of building.

Frame Residence Saved Through Application of Evolutions

Case two, frame residence, of "colonial" architecture, with asbestos shingle roof.

The building consisted of large two-story portion with central hallway and rear four-room wing forming an "L".

Fire, originating from unknown cause, had involved most of loft over one-story rear wing, but had not broken through the roof.

A door opening from the bath room on second floor into the loft over rear wing was open and fire was going into second floor through this, heavily charging the main portion of the house with smoke.

The department laid two lines from hydrants, taking pipe of first line up a short ladder and operating a stream through the scuttle hole in ceiling of one-story wing directly into main part of fire.

Pipe of second line was taken into front door of house, up stairs and stream operated into bath room, where a door opened into the burning loft. Pipemen suffered from smoke, but drove fire back out of the bath room and closed the door opening into the loft.

Pipe was then carried through a window out on top of roof of the one-story portion of building, a hole was cut in roof and a stream operated into the loft next to the main part of house.

Several more holes were cut in roof for ventilation and fire was soon under control and being overhauled with 1¼ inch hose line, coupled to tip of controlling nozzle.

Upon overhauling fire was found working up rear wall of second story to loft over main part of building, but was quickly cleaned up.

Pyrene Connects Up with German Firm

Upon the return of Walter Bauer, president of the Pyrene Manufacturing Company, and a member of the Fire Equipment Manufacturers Institute, from a trip to Europe, he announced that the firm had entered in an agreement with the Minimax Company of Germany whereby the Pyrene Manufacturing Company would distribute the extinguishers in all of the English speaking countries, and the Minimax concern would sell the extinguishers in the other parts of the world.

"We are greatly pleased with this agreement," said Mr. Bauer, "and it will do a great deal toward the big objective, which primarily is to reduce fire losses to a minimum. Our factories abroad are working full capacity and with every prospect for a steady increase in future business.

"Before the war the Minimax Company operated in every country but the United States; after the outbreak the American company obtained authorization from the French, British, Belgian and Italian governments for the use of its extinguishers. By the new agreement the German company will remain out of the American field and we will stay out of Russia and other foreign territory except England and Ireland."

Wayne Company Shortens Its Name

The Wayne Tank and Pump Company, Fort Wayne, Ind., makers of safety gasoline pumps and tanks, oil burners, water softeners, and other similar lines has changed its name to the Wayne Company.

The change, which is in name only and does not affect the business status or policies of the company, has been made on account of the broadening out of the company's activities into lines which the former title failed to cover.

The company was organized in the city of Fort Wayne in 1891, to manufacture gasoline and oil pumps and tanks, and has recently developed a home equipment division, in which is centralized the domestic oil burner, the water softener, etc. Hence the change in title.

Chevrolet to be Jaeger Equipped

All of the fire apparatus jobs built by the Chevrolet Motor Company, will in the future, be equipped with Jaeger pumps. These pumps will be installed on bodies mounted on their pleasure and commercial chassis. The Jaeger pump has a capacity of 350 gallons a minute. The pump has a guaranteed lift of twenty feet and can handle water with about twenty per cent solid matter. On the small pleasure car chassis, the pump is mounted in front of the radiator, while in the larger units, it is fitted in the customary place underneath the driver's seat.

The pump will be exhibited at the I. A. F. E. convention on a 1-ton chassis equipped by the Chevrolet concern.

Acceptance Test of a Pumper for Biltmore, N. C.

This test, which took place at Asheville, N. C., demonstrated the ability of an Ahrens-Fox triple combination car to throw a stream over a 15-story building. The apparatus has since been delivered to the fire department of Biltmore, N. C.

Chester, Pa., Firemen to Purchase Pumper—The firemen of Chester, Pa., have purchased a new pumper of 400 g.p.m. capacity.

COURSE OF INSTRUCTION IN FIRE PROTECTION

AS GIVEN AT THE UNIVERSITY OF ILLINOIS

SAFEGUARDING THE BUSINESS DISTRICT

By J. J. CONWAY

Superintendent, The Underwriters' Salvage Corps., Cincinnati, Ohio

THIS twentieth installment of the University of Illinois Course in Fire Prevention commences the consideration of a very important phase of the fire-fighters work—the protection of the commercial section of the municipality. It is handled by one well qualified to treat the subject:

I have been assigned a subject to discuss that would take a volume if I were to touch the entire subject, so my plan will be to touch along the high places and leave you to fill in the rest.

Take what may well be called the heroes of our country and compare their services. The soldier must be well trained, must be well drilled, must be disciplined and must face death without a quiver. So must the fireman be disciplined and obedient and fearless of any danger that might come to him. But with the soldier his work is aided and intensified by the rattle of the musketry, the shout of his comrades, the excitement which aids him in his undertaking, and the results of his faithful performance of duty are the smouldering homes, the remains of cities and the cries of the widows and orphans. On the other hand the work the firemen are engaged in is the protection of life and property, of the homes of our people. So, when you compare the service or the duty accomplished by the two, the wreath of fame should be placed upon the firemen.

I recall dropping into a college one day, where there was a fire school. The chief of the fire department was at the blackboard. In the meantime I came in and took a back seat without him seeing me. My safety director was with me. He put this question: "Now, gentlemen, suppose there was a buliding on fire, with a ladder up to the third story window, where there was a woman weighing 300 pounds; how would you go about bringing her down, with the elevator blocked?" An Irishman in front of me said, "Make two trips."

First Eliminate All Hazards if Possible

The subject, The Protection of the High Value District, that is, the congested value of any city, is a large one and one that has many angles. In the first place, before starting to extinguish a fire the most important thing is to prevent it, and the only way to prevent the fire is to eliminate the hazards that may cause a blaze, and then eliminate those buildngs which we may call conflagration breeders and spreaders.

These are buildings which cover a large area and are filled with highly inflammable material, with little access for the fire department and the building exposed on all sides. We are slow taking up the control of such matters. I see, if I walk through the streets of almost every city, a big frame area going from one square to the other. It is only a matter of time until the fire department in any of those cities is going to be taxed to its utmost to hold the fire in one of those buildings when it starts.

Fire Must be Attacked In Time and In Force

The only way you can hold a fire is to attack it in time and attack it with force. Don't be afraid to put your streams on and put them on in the proper manner, even if sometimes you are criticized for using too much water. You will be more severely criticized if you allow the fire to go beyond the bounds of that building. I am going into my forty-ninth year of fire fighting and my experience is that the only salvation and the only way to fight fire in the congested district, is to hit her, hit her hard and hit her quick.

Receipt of Proper and Prompt Alarm Most Important

When you come to the fundamental principles of fire-fighting and the protection of the high value districts, the first and important thing is receiving the alarm and receiving it on time. No matter what equipment you have in your station, no matter how well your men are trained, no matter how good your water supply is, if you fail to get the alarm until the fire has gone beyond the bounds which your forces can handle, your equipment and yourself are helpless, so lay stress on getting your alarms in and on time and through a reliable source, so that you know you are going to get them in time to attack the fire in its beginnings.

The next thing is to surround your fire. The fundamental principle of fire-fighting is to confine a fire. If it is in this room, don't let it get out, and if you have to have more force later in order to put it out, all right; but with the force you have stop it from spreading. Attack it on the side of the exposure and drive it back in the burned part of the building and hold it there, but don't start on one side and drive it out on the other. That is too frequently done in many places where the idea is to strike the flame wherever it is. That you cannot do. In order to save your congested value districts, you may have to call for outside help. That's the last resort.

The Menace of the Wooden Shingle Roof

The wooden shingle roof is responsible for more conflagrations than any other cause. We will take Nashville, Tenn., for instance. A small fire started in a little shack built on posts two and one-half or three feet above ground. There was a planing mill at the end of the lot and the wind was blowing toward it. The story is that there was a slip of a colored boy living in the shack with his mother, with no money to buy a ball, so he took his mother's stocking, unraveled it and winding it up, made a ball. They had an open fire place, and as he bounced the ball around, it landed in the fire. When he got it out, the ball was burning too much for him to pick it up, so he kicked it out of doors. That ignited some shavings around the mill and twenty-two homes were lost inside of two and one-half hours. No fire department in the world could meet that condition. The sparks will travel a quarter of a mile. They go in this direction and in that, and you cannot keep up with the shingle roof fire. There is no fire department in the world that ever put out a conflagration after it once started. It will either burn itself out or the wind will shift and carry it back. So you are helpless if your fire once gets away from you.

Necessity for Good Fire Streams

Your streams are very important. Many of your towns are depending on what we might call the Holly system, where you pump direct into the mains and depend on the mains for your pressure up to 100 or 125 pounds. It is highly important that you know in every square how many streams you can put on those pipes and still maintain that pressure, because if you go beyond a certain draft on your pipes, if they are not sufficiently large, you are going to reduce each stream until none of them is effective. So in your towns where you will be called on for many streams for fire extinguishing you should by test determine to your own satisfaction that the flow in that district is sufficient to give you a good fire stream, and really in a heavy fire a good fire stream calls for 100 pounds at the nozzle. Many of you have not got more than 100 pounds on the pipe. Your friction in the pipe itself—what we call loss of head in the pipe—and your friction in the line reduce your pressure materially.

Too Many Lines from the Plugs

I had an instance of that kind occur one time. Mr. Archibald was chief of the Cincinnati fire department. He came to my station in a hurry one morning and said, "I have a telegram from town so and so, asking for help." It was too far to ride in my buggy—we had horses at that time—so I said to the C. H. & D. Railroad, "Get some flat cars next to the platform so we can load." We started for the depot. A thought struck me as I drove past Fourth and Walnut streets. I jumped off the buggy, ran into the telegraph office and wired, "Cut down the streams until they become effective." I jumped into the buggy, went to the depot and loaded our engines. They were holding a passenger train to let us out ahead. I said, "Let's jump on that passenger and go up and see what he has got." When I got there the chief exclaimed: That's what was the matter; everybody was laying lines from every plug and nobody had a fire stream."

Should Calculate Flow for All Districts

You should know the flow in any particular section. Then figure that you want 460 gallons for each one of those nozzles,

for it takes 460 gallons to fill an inch and a quarter nozzle with 100 pounds of pressure, and then give orders not to lay more lines than that, unless you put your engines on. Putting an overdraft on the line has been the cause of many a man losing his fire. No pipe should be laid in any section that will not deliver the number of streams necessary for practical fire-fighting for the worst emergency case, in addition to the consumption. That is, if the daily consumption on those pipes is a certain amount, you figure you want ten or fifteen streams in order to hold that square, then you want to figure that and see that your pipes will deliver that much, or at least put in a protest against the pipes not being sufficiently large, so that when the time of the emergency comes and you are lost for the lack of water, you can put the responsibility on somebody other than yourself.

Authorities Slow to Move

These things will come slowly. The chief will meet with opposition. We had a water works that had deteriorated long before, and for six years I kept continuously pounding at the city officials and citizens at large, through our newspapers, that it was absolutely impossible with our going consumption for that water works to maintain a sufficient water supply to save our city from fire. It took six years of argument and persuasion before we got them started, with the result we ran out of water one year before the new water works was built. Then everybody was wondering why somebody did not start sooner. That's the condition you will almost invariably find, but is is only one part.

Importance of Right Building

The other and more important part is that architects and engineers must come to the assistance of the fire-fighters. The fire-fighters cannnot keep up the equipment and extinguish fires in buildings that have been built so that fires can spread from one end to the other without stopping, especially when this is an economical proposition and very easy to remedy. A copper chimney built in a house will not cost in excess of the present method of building chimneys. A safe chimney will not cost $25 to $30 at the outside. Why not compel them to put them in right instead of letting the buildings burn, one after the other? Defective flues are one of our most common causes of fire.

(To be continued)

New Physical Standard for Firemen

New standards for the examination of firemen throughout the United States have been adopted by the National Association of Police and Fire Surgeons and Medical Directors of Civil Service Commissions of the United States.

According to these requirements the applicant must not be less than twenty-one at the time of the medical examination and not over the age of twenty-nine at the time of filing the application.

The applicant must be free from any marked deformity, free from all parasitic or systematic skin diseases, and from the evidence of intemperance in the use of stimulants or drugs. The body must be well proportioned, of good muscular development, and must show careful attention to personal cleanliness. Obesity, muscular weakness or poor physique is sufficient cause for rejection. The girth at the abdomen must not be more than the measurement of the chest at rest.

The applicant is rejected for chronic catarrh, or very offensive breath. The mouth must be free from deformities or conditions that interfere with distinct speech or that predispose to the disease of the ear, nose or throat. There shall be no disease or hypertrophy of tonsil, or thyroid enlargement. The teeth must be clean, well cared for and free from multiple cavities. There must be at least two molar teeth to each jaw on each side and these teeth in good opposition for proper mastication of food. The jaws must be free from badly broken or decayed teeth so far destroyed as to render filling or crowning impossible. Missing teeth may be supplied by crown or bridge work; where site of teeth makes this impossible, rubber dentures will be accepted. At least twenty natural teeth must be present, and an indication of pyorrhea is sufficient cause for rejection.

Hernia in any form, actual or potential will cause rejection.

The applicant must be free from deformities and from marked varicocele, hydrocele, enlargement of the testicle, stricture, or incontinuance of urine. Retained testicle or atrophy as well as acute and all venereal diseases of these organs must be cause for rejection.

Fissures, fistules and external or internal piles must be absent. The applicant should be rejected for a marked tendency of varicose veins.

The arms, legs, hands and feet must be free from affections of the joints, sprains, stiffness or other conditions such as flat-foot, ingrowing nails or hammer-toes which would prevent the proper and easy performance of duty. The first (index), second (middle), third (ring) fingers and the thumb must be present in their entirety—the great toe must also be present in its entirety.

The following is a list of the approved dimensions:

Height	Weight (Pounds)	Expanded Chest (Inches)	Chest Mobility (Inches)
5′-7 ″	140	38	3½
5′-7½″	140	38	3½
5′-8 ″	140	38	3½
5′-9 ″	145	38½	4
5′-10 ″	150	38½	4
5′-11 ″	155	39	4
6′	160	39	4
6′-1 ″	165	39½	4
6′-2 ″	170	39½	4
6′-3 ″	175	39½	4
6′-4 ″	180	40	4½
6′-5 ″	185	40	4½

The applicant must have a minimum height of five feet, seven inches, weigh 140 pounds, and have a minimum chest measurement of 33 1/2 inches. The maximum weight is twenty per cent over this.

He must be free from color blindness and be able to read with each eye, separately, the standard test types at a distance of twenty feet. The loss of either eye, chronic inflammation of the lids, or permanent abnormalties of either eye is cause for rejection.

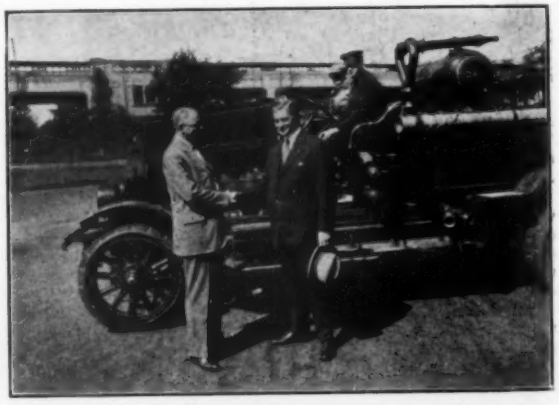
The applicant must have normal hearing—that is hear whispering voices at ten feet, low voice at twenty feet and loud voice at eighty feet.

The respiration must be full, easy and regular—the respiratory murmur must be clear and distinct over both lungs and no disease of the respiratory organ must be present.

The action of the heart must be uniform, free and steady in its rythm, regular and the heart free from organic changes. The blood pressure, systolic maximum 135; diastolic 90; pulse pressure 15 to 50.

The brain and nervous systems must be free from defects and epilepsy is cause for rejection.

The kidneys must be healthy and the urine normal. All of the applicants will be subjected to the Wasserman test before appointment.



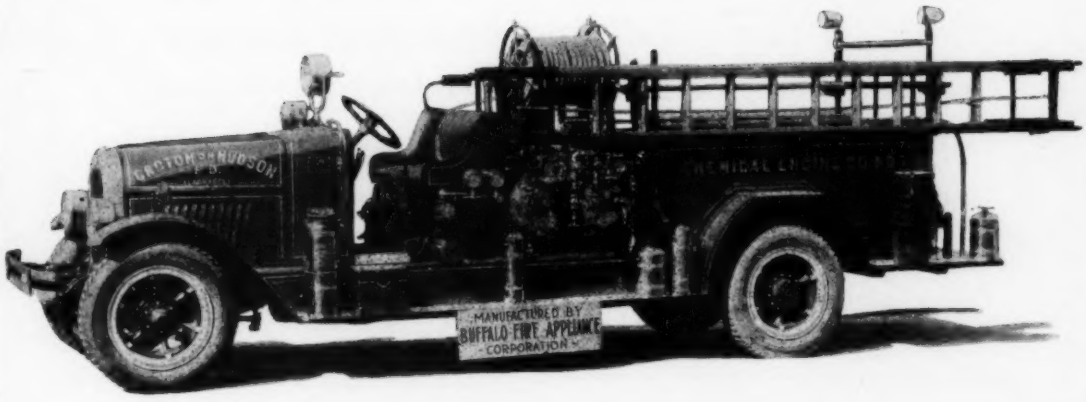
Last Engine of New York City Contract Delivered.

Robert Hazard (left) of the American LaFrance Fire Engine Company is congratulating Fire Commissioner John J. Dorman (right) of New York city, on the occasion of the delivery of the last of a series of twenty 700-gallon pumpers for service in the boroughs of Brooklyn and Queens. They will replace the last of the tractored steamers that have been in service since the passing of the fire horses. The picture was taken on the Grand Boulevard and Concourse, following the road test which is required in accordance with the terms of the contract.

W. J. DALY

Captain Duncan of Knoxville, Dead—Captain William T. Duncan, formerly fire prevention inspector of Knoxville, Tenn., died at his home as the result of double pneumonia, at the age of fifty-five. He became a member of the fire department in 1900 after service in the police department. When Chief Boyd created the post of fire prevention inspector, Captain Duncan was appointed to the work. He is survived by five children and a brother.

BUFFALO



Buffalo "Built-to-Order" Apparatus is Ideal for Small Towns and Suburban Communities

The apparatus pictured above is a typical Buffalo job. Triple Combination Pumper equipment mounted on a Larrabee chassis. Pump guaranteed to deliver 350 gal. per min. at 120 lbs. pressure. Two 40 gal. chemical tanks and 1000 ft. hose body.

CROTON-ON-HUDSON is only one of many suburban communities that have purchased Buffalo apparatus. Small towns, suburban and rural communities everywhere are rapidly turning to us for apparatus because we specialize in just the type of equipment they need.

We build-to-order dependable, moderate-cost apparatus that will exactly meet the requirements of the town or community making the purchase. Our experienced fire apparatus engineers work right with the local fire officials in making plans for the new apparatus. The apparatus is then built of the finest materials available according to these plans by trained workmen in our large and thoroughly up-to-date plant.

This method is proving so successful that Buffalo apparatus is making-good wherever placed in service, our business increases steadily and fire officials, of their own accord, are constantly writing us glowing letters of praise of their Buffalo equipment in service.

Regardless of whether or not you are considering new apparatus at this time, we would like you to know all about the Buffalo method of doing business and about modern built-to-order fully-guaranteed Buffalo apparatus.

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BUFFALO FIRE APPLIANCE CORP.

Main Office and Factory, Buffalo, N. Y.

BUFFALO

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Do not fail to visit our complete Exhibit at the I. A. F. E., New Orleans, Oct. 19-20-21-22.

Learn at first hand the tremendous advancement which we have achieved in siren construction in the large, as well as the small types. Also become acquainted with the Siracode System for towns and industrials. Once you know these, no others will do.

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Erick Electric Siren

For **Volunteer Fire Departments** in towns of from 300 to 5,000 population, there isn't a Siren or a system in the world to equal the Erick. Night and day—year in and year out—it offers best protection to lives and property.

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That's our method of proving the Erick Electric Siren to be the fire alarm you need in your town. Place it side by side with the best of all other sirens for 30 days and then be your own judge—decide for yourself whether you want to keep it or not.

"When fire is discovered, call Central from nearest phone."

"The Erick Electric Siren Shrieks its call of danger to every nook and corner of your town—quick, sure and dependable."

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The Erick is the only Siren using one big whistle on a powerful 3 and 5 h.p. motor which throws its sound evenly in all directions—louder and more penetratingly than all others. Many special features including special designed hood and screen that protects siren from rain, storm, and nesting birds.

Write for full information and details of liberal 30 Day Free Trial Offer

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ST. PAUL, MINN.

OF INTEREST TO VOLUNTEER FIRE DEPARTMENTS

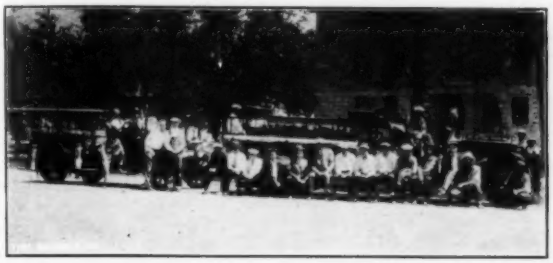
Protecting a Small City Against Fire

By L. A. GAINES, City Manager, Alliance, Neb.*

Each town or hamlet is primarily interested in two things—fire prevention and fire protection, although the former is far more important.

The first step was to comply as far as possible with the recommendations of the Nebraska Inspection Bureau, some of which are outlined.

Provide complete records in book form showing the daily consumption of water; compile a map showing the sizes and



Members of Alliance, Neb., Fire Department and Their Apparatus

locations of all the water mains, valves, hydrants, etc. Connect up all "dead ends" with not less than 6-inch pipe wherever and whenever possible. When additional hydrants are connected to the system allow a maximum not to exceed 85,000 square feet of area to be served in the mercantile section and 100,000 square feet in the residential districts. All gates should be inspected periodically and record kept of their condition, repairs and adjustments. This should be done quarterly. Increase the water supply facilities.

Interesting the Public

A member of the volunteer fire department was appointed as fire inspector and was given a commission as deputy state fire marshal which gives him ample authority. His inspections thus far have been confined to the business district, public buildings and schools. With the owner or tenant he makes a complete "Fire Prevention" inspection from cellar to garret, making note of all undesirable conditions with suggested remedy therefor. This report is made in duplicate, one copy being given to the occupant or owner of the building and the other retained by the inspector for check-up on his next monthly inspection. The public has responded admirably with the result that a great many bad conditions have been uncovered and corrected. Thirty additional 2½-gallon acid and soda tanks and sixteen 1-quart tetrachloride extinguishers have been installed and thirty-nine refilled that were found empty or unusable.

An ample supply of acid and soda has been placed at the fire station for the recharging, without cost, of all extinguishers that are brought in. At every fire where extinguishers are used other than those belonging to the fire department, the chief details a man to see that such extinguishers are immediately brought in and refilled.

The department secured Harry K. Rogers, known nationally as the "Fire Clown" during the annual state firemen's convention here in January. Through a series of meetings at the school houses and at one of the theatres, held especially for school children, Mr. Rogers made "Fire Prevention Inspectors" of hundreds of little ones to whom a leaky flue or the throwing away of a lighted cigarette had previously meant nothing.

The fire department, the police department, the health department and in fact the entire personnel of the city administration has combined to fight fires before they are lighted. A determined effort is being made to make this a perpetual campaign and keep it before the people all the time.

Fire Fighting Apparatus

For several years the fire fighting apparatus has consisted of a combination chemical and hose automobile truck, two hand reels and a 40 foot extension ladder. The last named was seldom used because there was no way of carrying it to a fire. The expansion of the city by reason of several additions to the corporate limits since the purchase of the original truck, together with the natural growth of the community, made the purchase of another unit of motorized apparatus a necessity. The city manager was instructed early last summer to buy another truck.

Now a city manager is supposed to be posted on a great many subjects, particularly in a town of less than ten thousand inhabitants, where his contacts with detail work are so much closer than in the larger places. However, the relative merits of all the different types of fire trucks that are offered for sale in the United States, was one subject upon which neither he nor any of his official associates were even reasonably well informed. The only thing to do was to go to those who were informed from actual experience, for the necessary information. The first step was to send out a questionnaire to fire chiefs in different parts of the country. This questionnaire consisted of eleven questions, concerning the type, capacity, and number of units of equipment used; water supply and main pressure; operating conditions; contained a brief statement of our local conditions as to water system, pressure, type of building construction, area to be served, population, street conditions, etc., with a request for both general and specific suggestions.

Analysis of Replies to Questionnaire

This was mailed to the fire chief of every town of more than 5000 inhabitants, (except metropolitan cities), in Nebraska, Kansas, North Dakota, South Dakota, Montana, Wyoming, Colorado, Utah, Nevada, Washington, Oregon, Idaho and New Mexico, with scattered inquiries to similar towns in 12 other states. Replies were received from 78% of the total number addressed. 41 Chiefs wrote personal letters giving additional information; 16% have full paid departments; 84% have volunteer departments, (though more than 60% of the latter pay their volunteer firemen from 50c to $1.50 per hour for actual service). While the replies confirmed the statements made by most of the apparatus salesmen in that approximately 85% of all the fires are extinguished by use of chemicals alone, 89% of these replying recommended the purchase of a triple combination truck, in most cases suggesting one of the 750 g.p.m. capacity.

The city manager arranged to visit eleven of the cities from which replies were received, when taking his annual vacation, and examined as many different makes of equipment, secured a great deal of valuable information first hand concerning them and the companies selling and servicing them. After this the city was able to deal with salesmen more intelligently and to eliminate at the outset, many whose equipment was not suitable.

* Excerpts from City Manager Magazine.

Reverting Back to the Old Reliable Method

When fire threatened the village of Poolville, N. Y., the blaze was fought with the old commonly known method of hand pails. The farmers for miles around rushed to the scene of the fire with large milk cans, and their combined efforts made it possible to save some of the nearby buildings. This is the time when all hands are needed.

The old truck was overhauled and repainted, and the 40′ extension ladder mounted overhead, making a serviceable second unit of it. Minor equipment such as smoke masks, electric lanterns, boots, rubber coats, etc., was brought up to standard requirements and will be added to from time to time as needed.

Fire Department

With the exception of a paid truck driver, who is on duty all the time, the department is entirely voluntary. It consists of four companies, of twenty men each. Under the direction of the chief, drills are held regularly each Sunday, with occasional mid-week drills in conjunction with the fire department of the Burlington railroad shops. Four men in addition to the fire truck driver sleep in the fire station. There were 38 alarms answered in 1925, with an average attendance of 23 firemen; total damage, $5495, all of which was covered by insurance.

Hudson Valley Firemen Elect Officers

The 1927 convention of the Hudson Valley Volunteer Firemen's Association will be held at Poughkeepsie, N. Y., on June 21-23.

The following are the new officers of the association: Pierre H. DePew, Nyack, N. Y.; 1st vice-president, George T. Kelly, Yonkers; 2nd vice-president, William B. Martin, Kingston; treasurer, A. J. Murphy, Kingston; secretary, Chris W. Noll, Poughkeepsie; directors, William H. Frank, Jr., Poughkeepsie, H. Buxbury, Hudson, P. E. Wiley, Suffern, William H. Kolts, Kingston, and S. A. Fowler, Rensselaer.

The county vice-presidents for the various counties in the territory of the association are as follows: Albany county, Raymond V. Sutherland, Albany; Columbia county, Mark Rosenthal, Hudson; Dutchess county, James J. Kearns, Rhinecliff; Greene county, Henry V. Place, Catskill; Kings county, Joseph O'Neil, Brooklyn; Orange county, Allen D. Brown, Port Jervis; Putnam county, M. D. Morgan, Brewster; Queens county, Henry P. Page, Roxbury, L. I.; Rensselaer county, Edward Cinnamon, Rensselaer; Rockland county, Harold R. Wilkinson, W. Haverstraw; Saratoga county, Vincent J. Powers, Mechanicsville; Sullivan county, Morris A. Borden, Liberty; Ulster county, L. E. Dunne, Kingston; Westchester county, Charles H. Buckley, Mt. Vernon; Warren county, Arthur Murray, Hudson Falls.

Process for Fireproofing Shingle Roofs

It is a matter of common knowledge that in many of our large cities the conflagration risk from wood shingle roofs is a very serious hazard. New York City has areas, notably in the Borough of Queens, where the risk to property has been recognized by drastic increases in insurance rates, and where the possibility of serious loss of life by conflagration is always present.

It is one problem to prevent the increase of such areas by legislative restrictions applicable to future building. It is an entirely different problem to determine how the great risks which already exist are to be reduced, and greater safeguards thrown around lives and property now exposed to hazard through the widespread use of wooden shingles in congested population areas.

A series of tests recently made by the Engineering Laboratory of Columbia University under the auspices of the Bureau of Standards and Appeals of the City of New York indicate that the pressing problem of how to minimize existing risks may have found its solution. These tests dealt with what is called "The Analox Process" for fire retarding roofs covered with wood shingles. They were conducted by Professor Beyer of the engineering department of the University.

The first step in the Analox Process is the saturation of the upper surface of the shingles with a liquid fire retardant. This liquid penetrates into the shingles and causes them to resist flame and heat. The roof is then painted with a newly invented paint called "Analox", which not only serves to keep the fire retardant liquid locked into the wood of the shingles, but which has a fire resisting quality of its own. In the application of the second coat a mixture of "Analox" paint and common sand is used, the resulting substance being thick enough so that it can be brushed up against the ends of the shingle butts, where it remains permanently plastic, protecting the roof at its weakest point not only against fire but against the elements as well.

The tests used were the standard "fire-brand tests" devised by the laboratory of the National Board of Fire Underwriters. The most severe of these tests involves the use of a fire-brand, in the form of a crib built of thirty strips of pine one foot long and three-quarters of an inch square in cross section. These strips are nailed together in three layers, at right angles to each other and with air spaces between the separate pieces of wood. When this crib or fire-brand is once ignited it burns fiercely and generates an intense heat. In the application of the tests the fire-brand is fanned by blowers which create a breeze of twelve miles per hour.

It is clear that a roof so treated that it will not ignite under such conditions will greatly reduce the shingle roof hazards with which our fire departments have to deal, and the favorable outcome of the tests in the case of the Analox Process promises a solution of the problem which should benefit tenant, owner and mortgagee alike, and which should materially relieve all officials charged with responsibility for the safety of life and property in our crowded city districts.

The fact that the Analox Process for treating roofs is relatively inexpensive makes it immediately available where the authorities do not see their way clear to compel the replacing of the large areas of shingle roofs which our cities now contain.

The inventor of Analox Paint, Mr. William H. McNutt, is well known as the inventor of non-explosive gasoline cans, and other safety devices.

Jordan of Baltimore Salvage Corps, Dead

Following several years of intermittent sickness, Malcolm W. Jordan, chief of the salvage corps at Baltimore, Md., died at his home on September 29.

Mr. Jordan was born in Norfolk, Va., in 1870 and later came with his parents to Baltimore. When he was twenty-one years old, he joined the fire department and soon was promoted to the captaincy of No. 10 truck company—In 1900 he was made chief of the salvage corps and he held that position until his death.

At the time of the Baltimore conflagration, at which he worked, he did not sleep for three days and nights. In his thirty-six years of firemanic work he is accredited with having saved many lives, and he was injured several times.

About four years ago, Chief Jordan's health began to fail and he went on a three months tour of Europe, in the spring of 1923. He returned very much improved in health, and he returned to active duty. About a year ago he was stricken by a complication of diseases and he was forced to bed for several short periods. It is said that the sudden warm weather was responsible for hastening his death.

He was a close friend of August Emrich, chief of the Baltimore Fire Department, who made arrangements for the proper fire department honors at the funeral. There was a detail of six battalion chiefs in charge of Chief Emrich, and two captains, two lieutenants and two regular men in charge of Captain Hieber of the Salvage Corps. Among those who attended the funeral that was held at St. Peters Protestant Episcopal Church were the Board of Fire Commissioners, the Board of Commissioners of the Salvage Corps; W. F. Conran and Fred W. Merdes of New York, Reuben Smith of the Philadelphia Adjustment Bureau, John Cranford and others.

Panama City Purchases Magirus Ladder

Captain De Castro of the Panama City fire department, who was commissioned to visit the United States in order to purchase fire apparatus, has bought a Magirus aerial ladder and water tower for that city. He is standing in his shirt sleeves on the right of the picture next to R. Thomann of the Magirus Fire Appliance Company, who is demonstrating the apparatus.

America's Urgent NEED

—adequate fire protection for neglected areas

CITIES and towns the country over will do well to consider the predicament of their neighbors in outlying rural communities. These communities contribute a staggering amount to our nation's annual fire loss of $500,000,000.00. It is estimated that there is a farm fire every 15 minutes.

The continuance of this situation is certain to increase insurance rates materially—but even this becomes a secondary matter. A more important consideration is the drain upon our farm-producing wealth. And equally important is the effect that such loss has upon the immediate prosperity of cities and towns in which "burned money" of rural communities would ordinarily be spent.

We have been working with many Chiefs and municipal officials to provide a new measure of protection for such communities. Already there are a number of special Boyer installations in cities and towns strategically located to serve farmers for miles around—saving these farmers thousands of dollars a year.

It is the progressive city or town which is adopting this new plan of giving protection to its neighboring farms. As a result such communities not only enjoy the undying good will of their rural neighbors—which makes for better business—but receive willing assistance in the payment for the apparatus as well.

The plan of purchase is so simple there is no reason why every community should not take advantage of it. Write for particulars.

BOYER FIRE APPARATUS CO.
LOGANSPORT, INDIANA

40 Years of Building Powerful High Grade Fire Apparatus. 6,000 Boyer Sealed Cartridge Chemical Tanks in Operation and Never a Failure.

BOYER

FORTIFY FOR FIRE FIGHTING

A New Sterling Product

THE LITTLE GIANT ELECTRIC SIREN

WRITE US NOW FOR FULL PARTICULARS. These Little Giant Electric Sirens fill a long felt need for the small towns and villages where buying a Siren has been delayed due to the high cost of larger sirens.

Here at last is the ideal signal for small towns and villages where Fire Siren protection is needed, but where a big alarm is not necessary.

Note This Low Price

$150.00

The Sterling Little Giant weighs only 82 pounds. It can be installed and wired in a few minutes time. The base is cast iron and the entire assembly is finished in Fire Alarm Red Duco.

Sterling Siren Fire Alarm Company Inc.
61 Allen Street - - - Rochester, N. Y.

C.A.M. Sirens

Are *Better* Sirens

C. A. M. Manufacturing Co.
802 Humboldt Bank Bldg.
San Francisco
California

INDUSTRIAL PLANT PROTECTION

HOW CAN THE EXPENSIVE FACTORY FIRE BE AVOIDED?

Detecting the Fire Hazard in the Plant will Reduce Fire Losses—Strict Enforcement of Regulations Necessary

By K. D. HAMILTON, Plant Engineer, Brockton, Mass., and R. S. MOULTON, Asst., Secretary, National Fire Protection Association.*

IN this article, the authors mention the possibilities of a factory fire, and mention some of the contributory causes of the many plant fires.

Must there be serious loss in a plant before the value of absolute precaution is realized?

Must employees be endangered and lives lost? Must the beyond-the-fire-damage losses be experienced?

If your plant should burn today, you could collect your insurance and, in time, rebuild. But you would experience a loss in business. Employees would scatter. And only by a most strenuous campaign could you rebuild your prestige and regain the good-will of former customers.

Fire is a serious problem. Management must become interested and must insist upon modern fire-fighting equipment. It must insist upon rigid inspection, upon constant test, and, above all, upon the cooperation of the employees in organizing for effective action in case of fire.

Insurance companies are doing their part. They are reducing rates on risks, made "preferred" because of modern equipment. The constantly bettered facilities of municipal fire departments set an example for factory owners in providing proper fire-control equipment.

But the starting point is not investment in equipment. It is carefulness. Many fires which originate in industrial plants come from a brand of housekeeping for which there is no excuse.

Special Men for Cleaning

Accumulations of oil-soaked waste, of shavings, of dust, of old boxes, of paper, and of similar materials are a constant hazard.

Special men should be responsible for keeping the buildings clean. All oily rags and waste should be removed from the buildings at night. Metal-lined containers should be provided so that this material may be safely stored. Excelsior, straw, waste paper, and similar material should be stored in approved containers and in the proper places in the building. Do not allow any one to burn rubbish near the plant. Provide a specially screened enclosure for this purpose, or send the material to the boiler-room for burning under the boilers.

Workmen frequently leave oily clothes, waste, and other materials in their lockers. Provide mental lockers so designed that air will circulate through each locker. Make frequent inspections to see that there is no accumulation of combustible materials. Many times in passing through our factories I noticed material piled against the steam pipes. This is a very real hazard.

The dipping vats used for painting or lacquering present a tremendous hazard, unless proper precautions are taken. Provide tanks of non-combustible materials.

Care in Handling Volatile Liquids

Where the nature of the work permits, covers that close automatically in case of fire are the best protection for dip tanks. For large tanks, foam extinguishing systems with fixed piping to distribute the foam are sometimes used. Portable foam extinguishers should always be at hand to protect the dip-tank hazard. Provide necessary ventilation to remove fumes; and where sprinkler systems are installed near the tanks, place a galvanized iron hood over the tanks, so that in case of fire the oil will not be washed to other portions of the plant, thus spreading the fire.

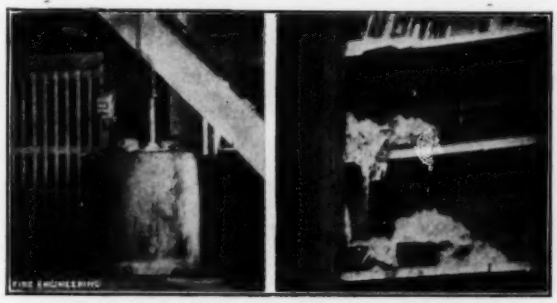
The same care should be exercised in handling gasoline, alcohol, acetone, benzol, and similar products. The fire hazard increases many times as the more volatile liquids are handled. Care should be taken that these liquids are handled at low velocities, and in small volumes, so as to eliminate any possibility of fire from friction or from static electricity.

Danger of Dust Explosions

Some dusts will ignite spontaneously or may ignite when overheated. Be careful that dust and lint do not collect in any quantity about the plant. Use the industrial type of vacuum cleaner.

In plants which produce quantities of dust there is danger of dust explosion. It is not generally realized that combustible dusts mixed with air under the right conditions may explode just as a mixture of gasoline vapor and air explodes. Almost any combustible dust may explode, and some explosions have been reported as due to metal dust which would not ordinarily be thought of as dangerous.

There is one case on record where six employees were killed in an explosion of aluminum dust in a factory in the Middle West. This explosion occurred in a blower system which was used to collect the dust from buffing aluminum ware. The most conspicuous example of a dust explosion during the past few years occurred at the Corn Products Refining Company in Pekin, Illinois, on January 3, 1924. Forty-two men were killed, twenty-two were injured, and property was damaged to the extent of some $750,000. An overheated bearing ignited the wooden casing of a screw conveyor. The fire traveled along the conveyor until it reached a bin where a load of dry starch was being dumped. The fire ignited the dust cloud, and the resulting explosion demolished a number of buildings of the plant. Previous to this disaster this particular plant had enjoyed a very good fire record. No explosion or fire of any moment had previously occurred in this property, and the hazard was not appreciated. This disaster and many others of the same character could have been prevented by measures designed to confine the dust in closed process containers, to sub-divide the amount of combustible dust exposed at any one time, and to eliminate possible causes of ignition.



Left—An Uncovered Can, and a Pile of Oily Waste (Right) Are Two Contributory Causes of Fire in Factories.

Smoking Is a Serious Hazard

Among all the causes of fire, "matches and smoking" is listed as being responsible for greater fire loss than any other single cause. Thousands upon thousands of fires are reported as due to careless smoking or careless use of matches. This presents a very difficult problem to the factory manager. It is one thing to issue orders that there shall be no smoking and quite another to make sure that they are implicitly obeyed in all parts of the plant. "No Smoking" rules frequently lead to employees going to toilets and out of the way corners to "steal a smoke." This may be more dangerous than smoking permitted in parts of the plant where it will be under observation and where any incipient fires will be promptly discovered.

It is said that the managements of some plants manufacturing pyroxylin and explosives search all employees for matches and smoking materials every day when they enter the plant. Some automobile plants are reported to take the same precaution with employees working with highly volatible finishes. This precaution is obviously impracticable for the average factory. Perhaps the best plan is to recognize smoking definitely and to per-

*Reprinted from Factory.

mit it in certain specified safe locations. If a smoking room is provided, where men may smoke after lunch, there should be much less temptation to surreptitous smoking in corners during the afternoon. This room can be made of proper construction and be so supervised that there is no danger.

Smoking may also be permitted in sections of the building where it would not in any way increase the fire hazard, such as in forge shops and foundries. Above all, the officials of the company should set a proper example. It is unfair to ask a foreman to enforce a "No Smoking" rule in his department when the general manager of the plant walks through, smoking a large Havana cigar. Men must be made to realize that the "No Smoking" rule is not an arbitrary requirement of the management, but that it is made in the interests of the employees as well. One effective "No Smoking" sign reads: "A FIRE in this plant may put many men out of work. Guard the property against fire, and protect *YOUR JOB. NO SMOKING.*"

Methods of Making Inspections

Chief Frank W. Bennett of Durham, N. C., writes that when the fire department in that city has suspicion that an individual is contemplating an act of incendiarism, the inspectors of the department make frequent inspections of the premises at odd hours. Where the suspicions are well founded, it has been responsible for people moving out of the city.

In one instance, where a suspect moved away to a nearby city, shortly after he had settled there a fire occurred in his place of business.

A 5 x 8-inch filing card is used to keep a record of the inspection reports. On the reverse side of the card, is a resume of what the inspector should examine and what defects should be reported.

INSPECTION REPORT
CITY OF DURHAM
FIRE DEPARTMENT

OCCUPANT _____
LOCATION _____
USE _____ YEAR _____ No. _____

PREMISES INSP. AND FOUND	LOCATION OF HAZARD	NOTICE	COR.
IN GOOD CONDITION		MONTH DAY	MONTH DAY
IN FAIR CONDITION			

REMARKS _____

INSTRUCTIONS TO INSPECTORS

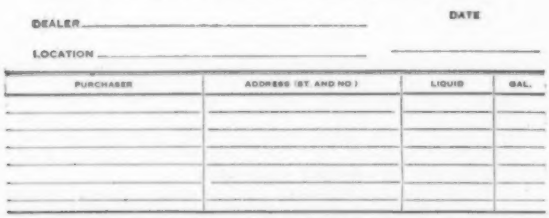
I. Examine all combustible material.

II. Report all material forming a fire hazard.
1. Gasoline 4. Oils 7. Paper
2. Greases 5. Oiled Rags 8. Rubbish
3. Hay 6. Paints 9. Trash
10. All other inflammable material.

III. Report location of hazard as follows:
1. Basement 4. Other Floors 7. Closets, giving location of each
2. First Floor 5. Attic 8. Yards
3. Second Floor 6. Roof 9. All other locations where hazards may be found.

IV. Examine the following and
V. Report all defects in:
1. Fire Walls 4. Chimneys 7. Stove pipes
2. Fire Escapes 5. Flues 8. Electric Wiring
3. Exits 6. Stoves 9. Furnaces
10. Ventilators 11. Report all conditions which may form a fire hazard or endanger life.

Upper, Inspection Card Used by Durham, N. C. Lower, Reverse Side of Card Giving Instructions to Inspectors as to What Hazards to Look For.



DAILY REPORT OF SALES OF INFLAMMABLE LIQUIDS

DEALER _____ DATE _____
LOCATION _____

PURCHASER	ADDRESS (ST. AND NO.)	LIQUID	GAL.

SECTION 13. All dealers in inflammable liquids shall report to Chief of Fire Department daily the names and addresses of all persons, firms or corporations to whom over one gallon of gasoline, benzine, benzol, or naptha is delivered; provided, however, nothing in this section shall apply to the delivery of the above named liquids to tanks of automobiles or other gasoline driven vehicles.

Card Which Must Be Mailed to Department by Dealers of Inflammable Liquids.

In accordance with a local law, a daily report must be made of the sale of gasoline, benzine, benzol or naptha in quantities in excess of one gallon. This law does not apply to the inflammable liquids supplied to automobiles or other gasoline driven vehicles. Chief Bennett urges other chiefs to take an active part in furthering the inspections of all buildings and hazards as a means of increasing the effectiveness of fire prevention.

Industrial Brigades Important

Throughout the country, the modern trend in the protection of plants and large areas of private property is the establishment of what are known as industrial or plant brigades. In many instances the plant is located in the cheaper land values of a town, remote from the fire protection facilities afforded by the municipality or else it is located near railroad facilities. The introduction of the railroad siding often introduces the hazard of long trains, preventing the approach of fire apparatus. Since the first few minutes of a fire are the most valuable, it is very important that means be brought to the scene at once for extinguishing the blaze. The large places have organized a brigade from among the workmen whereby at a given signal, the men drop the work they are doing and man the company's fire apparatus. Throughout the industrial centers, fire companies of this type have become a common sight, and a large amount of credit is given by the rating bureaus in the reduction of insurance rates where the brigades have been formed.

Chief J. J. McKenna, Pennsylvania Railroad.

One of the largest brigades in the country, and probably one of the most efficient is the one which protects the property of the Pennsylvania Railroad at its main terminal in New York. J. J. McKenna, well known to the members of the International Association of Fire Engineers, is entrusted with the important position of fire chief of this very large industrial fire brigade.

N. Y. Permanent Firemen Hold Convention

At the convention of the New York State Permanent Firemen's Association, which was held in the city of Ogdensburg, N. Y., about three hundred delegates from sixty-five cities were present. The visitors were entertained with a banquet and various trips around the city. Addresses were made by Julius Franks, former mayor of the city and president of the chamber of commerce, Asst. Chief Edmond Ramie, Frank A. Emden, secretary-treasurer of the association and President McGrath.

On the last day of the convention there was a parade of the delegates with the Ogdensburg fire department. The final call of the convention was the answering of a false alarm from the shipyards district.

The new officers are Wm. A. McGrath, president, Troy; Harold B. Nichols, 1st vice-president, Binghamton; Alexander J. Sutherland, 2nd vice-president, Rochester; Edward W. Gieselman, 3rd vice-president, Syracuse; John J. Mehan, 4th vice-president, Auburn; Frank F. Brun, 5th vice-president, Yonkers; John J. Evers, chairman of the board of trustees, North Troy; Steven Crannell, Rensselaer, Charles Thomas, Schenectady, Jacob P. Moreson, Buffalo, and Bernard J. Gannon, Albany, trustees; Frank A. Emden, secretary-treasurer, Utica.

Combination Ladder Reports Sales

The Combination Ladder Company of Providence, R. I., has recently delivered a number of their fire trucks to New England towns, among which are the following:

A 500-gallon triple combination pumper to Barrington, R. I.; two 350-gallon triple combination pumpers to Swansea, Mass., one to Portsmouth, R. I., and one to Norwood, R. I. A hook and ladder truck to Bethel, Conn., and a two-tank chemical engine to Rocky Point, R. I.

Banish the Fear of Explosion!

When fighting fires in garages or wherever G&B gasoline pumps are installed never fear that they will explode. It never has happened. It never will happen. For G&B pumps and tanks are properly safeguarded. The accompanying photo shows one of many fires in which the safety of G&B pumps has been demonstrated. It happened in an outlying section and no water supply was available, so everything in reach was wiped out, including tool and supply shed, four tractors, and other equipment. The G&B gasoline pump stood in the center of the fire, which was so hot it melted the engine bearings. The underground tank was half full of gasoline and the pump fully primed, yet at no time was there any danger of explosion.

The construction of G & B gasoline pumps is in accordance with every safety requirement. You can unhesitatingly recommend them wherever gasoline is to be dispensed

GILBERT & BARKER MFG. COMPANY
SPRINGFIELD, MASS., U.S.A.

BUCKEYE WHISTLES

Do they hear *You* Coming?

You can MAKE THEM HEAR you by using the same type of signal that is being used by the Locomotive. And why not? For 75 years the great American Railroads have been using WHISTLES to attract attention to an approaching train. If more effective warning signals existed, the railroads would be using them today—for they are spending millions annually to prevent the **DESTRUCTION of LIFE and PROPERTY.** Our Engineering Department has now made it possible for Fire Apparatus to also enjoy the protection of

BUCKEYE WHISTLES

A Warning Signal that Warns

BUCKEYE IRON & BRASS WORKS ~ DAYTON, OHIO

The Los Angeles Fire Dept. is 100% B & M equipped.

Hundreds of Cities over the country using our sirens.

We gladly send B & M Sirens to cities on approval without expense.

B and M

SIREN

"It pierces the air"

You Will Eventually Buy B & M's

Fire officials find the powerful B & M fire apparatus Siren to be ideal to meet modern street traffic conditions. Electrically-driven Sirens cannot be operated successfully by storage batteries in hard and continuous service. Hand-rotated Sirens are both exhausting and dangerous to the operator. Therefore, the mechanically-driven B & M Siren with its piercing screech that can be heard for miles is the ideal fire apparatus Siren.

Send for Complete Information

B & M MANUFACTURING CO.

Lester H. Miles, Proprietor

931 So. Main St. Los Angeles, Calif.

Two Books of Practical Value

to every fire officer interested in up-to-date methods and equipment

The New York Fire College Course

$1.50 a Copy—By Mail, $1.65 Postpaid

Comprising an abstract of the advanced practical instruction in up-to-the-minute Fire-Fighting methods given officers of the N. Y. Fire Dept. Fire Chiefs in cities, large or small, are increasing the efficiency of their men by placing this valuable book in every station. And with its help, too, fire department officers and men, studying for promotion, are easily winning top marks at examinations.

Explains in Clear Understandable Form—

Fire department tools and the most effective way of using them. Proper way to raise ladders and place apparatus. Building inspection, including sketches of buildings and points to cover in fire prevention and inspection work. Dwelling fires, and how to handle them. Apartment house fires, and how to fight them. Tenement house fires, and how to fight them. Office building fires, in old and new buildings; how to place apparatus and how to handle fires. Overhauling at fires, and wetting down fires without excessive water damage. Chemicals meet with in fire service, and precautions to take. Chemical and electrical fires. Oil fires and varnish fires.

What Every Fire Fighter Should Know

$2.50 a Copy—By Mail, $2.65 Postpaid

Comprising a reprint of the famous series of articles which appeared in FIRE AND WATER ENGINEERING during 1921 and 1922, under the same title.

This book is brimful of authoritative data covering the various phases of fire protection, and should serve the progressive fire chief interested in scientific fire-fighting methods as a valuable reference guide. It also gives to ambitious fire department officers and men, in simple, understandable form, the kind of information that will be found extremely helpful in preparing for promotional examinations. Contains more than 300 pages. Cloth bound.

Some of the Subjects Thoroughly Explained

Practical hydraulics. Fires and How They Should Be Handled. Fire Streams. Fire-Fighting Administration. Drills and Training Hazards of Industries. Fire Extinguishers. Oil Storage Hazards. Electrical Fires. Care of Fire Hose. Auxiliary Fire Appliances.

You Will Find These Books Worth Many Times Their Price. Order Today!

Book Department
FIRE ENGINEERING
225 West 34th St., N. Y. C.

Please send me ..... copies of "The New York Fire College Course" and ..... copies of "What Every Fire Fighter Should Know" for which I enclose a money order for $.....

Name.....Rank.....

Address..... Date.....

CORRESPONDENCE

Alleviating the Traffic Situation

To the Editor:

Congestion of vehicular traffic on our public streets and highways is causing delays to fire apparatus reaching the scene of the fire in the time they should. Undoubtedly this results in additional fire loss. This is particularly true of fire patrol apparatus which frequently have to respond as first due on alarms transmitted from patrol districts other than their own.

In the smaller towns and villages where streets are broad and buildings of low structure, the parking situation is not much of a problem, but in the larger towns and cities where high buildings and narrow streets are met so frequently, especially in congested mercantile and manufacturing zones, the danger from parking is a serious menace, and where parking and moving traffic are combined on such thoroughfares we have a "Sub Conflagration" hazard existing.

The situation has been discussed widely, makeshift remedies applied, and still conditions continue to grow worse and the fundamental reason for the conditions prevailing is never mentioned—"human selfishness".

The men in political life with the power to enact and enforce proper ordinances are primarily and the automobile owning public secondarily to blame. There will be automobiles and they serve largely for good purposes, but they can and should be properly controlled. I see only one practical lasting solution to the question, viz:

Permit parking on private residential streets only (not tenement districts).

Compel owners of automobiles of all types to have a duly authorized chauffeur on the car at all times, whether parked or stopped on street for any purpose whatsoever, so that the automobile may be moved expeditiously should necessity arise.

Undoubtedly this will be objected to by automobile owners "because of the expense entailed which they cannot afford". The man who doesn't park or congest the street with an automobile is one who in most instances does not own a car because he "cannot afford the expense". He is in the vast majority, and if he will assert his rights to proper protection, the parkers will either have to pay or give up the pleasure of parking, and the non-owner has the moral and legal right to demand the protection.

If the fire menace due to parking is to be removed, the non-owner must be stirred into action by showing him he is permitting a condition to exist that must ultimately result in economic loss to which he is, or should be, an unwilling contributor one way or another.

JAMES O. SCHWANK,
Supt. of Fire Patrol.

A Practical Formula for Fire Streams

To the Editor:

It is very useful for the firemen to be able to calculate easily the discharge from the nozzles that he is using. With that thought in mind, I have developed formulas that will enable one to calculate the results very easily.

The quantity of water discharged can be calculated from

$$Q = 0.2\ M^2\ \sqrt{H}$$

where Q = quantity of water in litres per minute

M = diameter of the orifice in millimetres

H = pressure in metres (1 kilogram 10 metres)

I have derived the following formulas

$$\frac{m^2 v}{4} \text{ and } v = \sqrt{2gH}$$

q = quantity of water in cubic meters per second
v = velocity of water per second
H = pressure in meters
m = diameter of the orifice in meters
g = acceleration by gravity

therefore $q = \frac{m^2\ \sqrt{2g} \times \sqrt{H}}{4}$

or $q = \frac{\times 4.43\ m^2\ \sqrt{H}}{4}$

If q is given in litres per minute, the formula becomes

$$Q = \frac{3.535 \times 60\ M^2\ \sqrt{H}}{1000}$$

or

$$= 0.212\ M^2\ \sqrt{H}$$

$$= 0.2\ M^3\ \sqrt{H}$$

which will be found sufficiently accurate for fire department work.

Example:

What is the discharge from a nozzle of 20 millimeters diameter with a nozzle pressure of eighty meters?

Answer:

$Q = 0.2 \times (20)^2 \pm 9 = \pm 720$ litres per minute.

Since in the United States, the metric system of measurement is not used for calculations of this nature, the value of the coefficient that will express the results in gallons per minute, can easily be calculated, when the diameter of the orifice is in inches and the pressure at the nozzle is stated in pounds per square inch.

We find by calculating

$$Q = 30.23\ i^2\ \sqrt{P}$$

or in round figures $Q = 30.\ i^2\ \sqrt{P}$

where Q = quantity of water in gallons per minutes (1 gal. = 3.785 meters)

i = the diameter of the orifice in inches (1 inch equals 2.54 centimeters)

p = pressure in pounds per square inch (1 lb. per sq. in. = .6703 kilograms per square centimeter).

Example:

What is the discharge of a stream of 1-inch diameter with a nozzle pressure of 120 pounds per square inch?

Answer:

$30\ i^2 \times \pm 11 = \pm 330$ gallons per minute.

The formulas of $0.2\ M^2 \times \sqrt{H}$ and $30\ i^2\ \sqrt{P}$ can easily be memorized.

Very truly yours,

C. GORDIJN, JR.,
Commander in Chief of Fire Brigade,
Amsterdam, Holland.

(In the latter example, the discharge from the table computed by John R. Freeman is 324.—Ed.)

Removing Foul Air with Pumper

To the Editor:

The following may be the means of saving life and perhaps property:

When it is desirous to remove gases or impure air from a manhole, or other place where men have been overcome by the fumes, the same can be accomplished by connecting suction hose to suction side of the pump and placing the end of the suction hose in the manhole, then operating the pumping unit just the same as to draft water. This applies to positive displacement pumps which will remove a large amount of impure air or gases when revolving at slow speed. With gear type pumps it may be necessary to seal the gears with heavy oil, especially if the gears are worn, caused by long continued service. When a centrifugal type pump is employed, the priming pump will accomplish the same results; in either case the pump should be sufficiently lubricated to minimize wear.

If the seat of the trouble cannot be reached with the suction

---

Voice Over Radio Extinguishes Flames.

Charles Kellogg, a vaudeville performer, who made some startling experiments in extinguishing flames by sound, has entered a new field of experimentation. He broadcasted some very high notes from the microphone of the General Electric Station KGO, and the reproduced sound extinguished a flame in the Le Conte Hall of the University of California, twelve miles distant. About fifty scientists and students witnessed the experiment at the university hall. Mr. Kellogg is before the microphone, and the sensitive flame in the glass tube is in the lecture room at the Le Conte Hall.

hose, air can be pumped into the manhole with a pump of the positive displacement type, by attaching either soft hose or chemical hose to the discharge side of the pump and operating the pumping unit with the suction caps removed. Should a Seagrave centrifugal type pump be employed, a chemical hose line can be attached to the discharge connection from the priming pump, which is located under the running board (right side of apparatus) and the operation of the priming pump will pump air through the chemical line to the seat of the trouble, providing suction inlets or discharge gates are kept open to admit air.

When pumping air into manhole with gear type pump, or a priming pump on Seagrave pumping units, just sufficient lubrication should be used to reduce pump wear to a minimum. A ¼" pipe connection to chemical hose male connection should be provided for the discharge connection on Seagrave priming pumps.

Yours for higher efficiency,
ROBERT H. MCNEISH, Automotive Engineer,
Author: "THE AUTOMOBILE FIRE APPARATUS OPERATOR"

Presenting the Facts

To the Editor:

I have often thought that if the fire chiefs of our large cities would try to put the traffic situation in regards to fire apparatus up to the public on the question and answer basis through the newspaper medium that the public would be made to understand more clearly and would be more willing to obey the ordinances protecting fire apparatus, and also to direct traffic at corners when apparatus is approaching. The public is not compelled by ordinance to direct traffic but I believe that many would be willing to do this if they find that the work is appreciated.

The following presentation of the problem is rather lengthy and the following copy can be cut down to meet the needs of the respective cities. However, the story will still be effective when the facts are presented to the public.

TO THE CITIZENS (City of ————)

If the thermometer pointed to zero and some one informed you that your house was on fire, you'd realize in a second that your family was threatened with being thrown on to the hospitality of the neighbors or friends for food, clothing, and shelter. Would you then get all of the available autos to stand around your home to hinder the fire department?

Would you after pulling the box, jump into your machine, race to meet the apparatus and then hinder them by getting in front of them, and hold the center of the street as you drive leisurely in a zig-zag manner so that you can get a thrill out of it?

Would you, if standing on the corner awaiting their arrival, refuse to signal a car coming one way if it threatened to crash another car coming the other way just so that you could see the crash. Even at the loss of your home through their inability to continue?

YOU WOULD NOT.

Could you throw your conscience to the winds if the crash was fatal to a man with a family knowing that you could have stopped it by signalling one of them?

YOU COULD NOT.

It will pay you to remember the following:

That firemen are not allowed to take the apparatus out for a joy ride.

That when you see the apparatus on the streets, it is there because a call came in from some place in danger, some lives and some of the dear ones in jeopardy—or it may have come from a professional "kidder" or lunatic who pulled the false alarm.

That the duty of a fireman calls for a certain amount of risk, but the hazard can be increased or decreased according to the will of the public.

That every minute, every second, lost at the start of a fire means more damage and more danger.

That the more damage results from a fire, the higher are the insurance rates.

That when an apparatus is wrecked you help to repair it by taxes.

That when someone is killed there is apt to be someone else thrown on the public for care.

That you pay a part of all things connected with the fire department and the expense of their proper functioning. A non-cooperating public can increase costs of both insurance and taxes. A public that will help, can greatly reduce these charges and best of all, the loss of life.

Remembering all of this will you agree to:

Direct traffic at any corner you are near when the apparatus is approaching unless guarded by an officer.

Immediately if driving pull ot the curb on your right and stop.

Not to follow the apparatus closer than is necessary and then only when the street is clear.

Not to drive within a block of the nearest working apparatus.

Not to send in a false alarm; and to co-operate with the police in the arrest and conviction of those who do.

Do all you can to prevent and check fires.

Good citizens will do this. Are you a good citizen?

Very truly yours,
A BUFFALO READER.

Fire Patrol Chief, Noted Fire-Fighter

John C. Egner, chief of the fire patrols, a noted fire-fighter and ex-chief of the Kansas City, Mo., fire department, has done a great deal to promote fire-fighting. He was born in Chicago, Ill.; his father, Charles Egner, was a member of the Chicago Volunteer Fire Company No. 2, in the early days of that city, and a life member of the Firemen's Benevolent Association of Chicago.

In 1871 Chief Egner came to Kansas City with his parents. He attended a local school and completed his education by attending the Spalding College of Kansas City, Mo. He was an active member of the Kansas City Turnverein. Wishing to see something of the country he joined a leading circus of that day, as a gymnast and acrobat. During the winter months he filled vaudeville engagements. He continued this work from 1879 until 1883, when he was appointed a member of the Kansas City Fire Department by the late Chief George C. Hale.

In June, 1893, Chief Hale took a crew to London, England, with J. C. Egner as captain to attend the great International Fire Congress held at Royal Agricultural Hall in London. Here this crew won first prize in competition with the foreign countries. The contest was held June 12th to 17th, 1893. The American Fire team, as they were known, consisted of a picked crew of eight members of the Kansas City Fire Department. Later they attended the International Fire Congress, held at the Paris Exposition, Paris, France from August 13th to 19th, 1900, where they again won the first prize.

Many entertainments were given for the members of the American Fire Team while abroad. Chief Patterson arranged an exhibition by members of the Glasgow Fire Brigade for the benefit of the Americans. By special request of the Town Council and citizens of Glasgow, the American team gave an exhibition. The evening exhibition was given for the benefit of the working class, and was witnessed by a crowd estimated at 80,000 people.

Chief Egner hopes to attend the Convention of the Officers Association of Fire Patrols, Salvage Corps and Protective Departments to be held concurrently with the Chief's Convention in New Orleans, La., October 19th-22nd, 1926, at which time he expects to renew acquaintance with his many friends.

Another Film Studio Goes Up in Smoke.

One of the landmarks of Hollywood, Cal., was destroyed in a series of explosions that resulted from a fire which caused a $400,000 loss. The destruction of the Century Studio endangered the safety of three other film studios nearby and threatened the destruction of a large residential area. The explosion of the chemicals, films, gunpowder both in can and blank cartridges in the arsenal caused many of the crowd who were watching the fire to flee for shelter. Six firemen were injured. The cause of the fire has not been determined.

North Bergen Firemen Contribute to Orphanage—A fund of $500 that was collected some time ago towards the purpose of fire apparatus but which was later purchased by the paid fire department which succeeded the volunteer organization, has been donated to the orphanage there in response to the mayor's appeal for funds. The firemen's contribution was the first that was received in response to his plea for money to install a heating plant in the orphanage.

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A. A Paint.

Q. How does it differ from other paints?

A. It is more durable. It costs less. It is more economical to apply. It dries more quickly.

Q. Is it anything more than a paint?

A. Yes. It is a fire retardant.

Q. What is the "ANALOX PROCESS"?

A. A process for protecting wood shingle roofs against fire brands.

Q. How effective is it?

A. Tested by the Engineering Laboratory of Columbia University the roof treated with the "ANALOX PROCESS" withstood successfully the famous "burning brand test" which is used by the Laboratory of the National Board of Fire Underwriters.

Q. What is the bearing of this on fire hazards in American Cities?

A. Wood shingle roofs impose a terrifying "conflagration hazard" on practically all our large cities. The existing risk from wood shingles can be done away with at relatively small cost by the "ANALOX PROCESS".

Q. How should the matter be handled in your city?

A. A local contracting company should be formed to apply the "ANALOX PROCESS" under license from us. This process should be made compulsory for all wood shingle roofs in congested districts.

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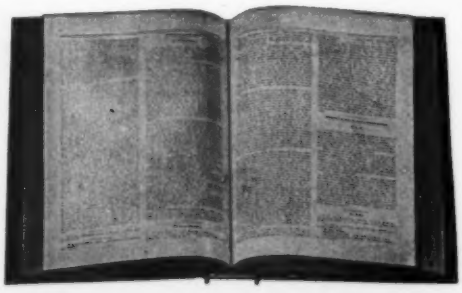

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Charleston, W. Va., Chief Resigns

W. W. Graham, chief of the fire department at Charleston, W. Va., has tendered his resignation to Mayor Wertz to be effective on November 1, 1926 and it has been accepted.

This will bring about four changes in the department and will probably make a change in the local prohibition enforcement. Assistant Chief McLane has been advanced to chief, Captain Fred Blessing will be promoted to assistant chief, and Fred Hammack, a driver, will be made captain. While the future plans of Chief Graham, outside of the fact that he will take a months vacation, have not been made public, it is rumored that he will take the office of deputy prohibition director for the southern district of West Virginia.

Chief Graham has served under three political administrations, and has served the longest time of any chief in the history of Charleston. He entered the service of the fire department when the department consisted of but eighteen men, two fire stations and two pieces of fire apparatus. At the present time the department consists of fifty-three men, seven fire stations, seven pieces of motor apparatus and a fire alarm system — and the fire force is being constantly improved.

What's Burning

(*Continued from page* 1017)

LELAND, MICH.—Hotel Nicholas destroyed..... 65
SAN ANTONIO, TEX.—Plant of San Antonio Oil Works damaged 60
KIRBYVILLE, TEX.—Three business establishments and one residence destroyed..... 30
BROKEN BOW, NEBR.—Three buildings in business section destroyed 25
WARRENSBURG, OHIO.—Five buildings in business section... 125
SCHENECTADY, N. Y.—Stumble Inn, Duanesburg Road..... 25
DALLAS, TEX.—Elm Street business establishments destroyed. 65
CONWAY, ARK.—Cotton shed of the Conway Compress Company 300
DES MOINES, IA.—Arts and Science Building of Des Moines University 40
LINDEN, N. J.—Warner-Quinlan Asphalt Company damaged... 25
SCOFIELD, UTAH.—Beddoes Hotel destroyed..... 40
FANNY BAY, B. C.—Mill on east coast of Vancouver Island owned by Mackie, Barnes & Horton..... 25
ALBANY, GA.—Three buildings of Planters' Oil Company plant.. 70
CORDELE, GA.—Plant of Crisp County Lumber Company..... 40
MEDFORD, OREG.—Sawmill Department of Tomlin Box Factory damaged 25
CINCINNATI, OHIO.—Day Wood Heel Company damaged..... 25
RICHMOND HILL, L. I. N. Y.—Six dwellings destroyed, Manse and Loubet Streets..... 40

Fire Escape to Protect Hospital Patients

Following closely upon the completion of the inspections of the various state hospitals in New York, in order to safeguard them against fire and reduce the possible loss of life among the bed-ridden patients, is an invention designed to facilitate the removal of such patients from a hospital in case of fire.

Some of the hospital fire escapes make use of ramps for rolling the beds to safety. The design illustrated is based on the endless chain principle in a manner similar to the tray conveyor systems now in use in some of the hotels and cafeterias. Each bed is equipped with telescoping handles on each end. In case of fire, two nurses or attendants pull out the handles from either end of the bed, and the patient and bed are rolled or carried to the platform.

The platform is built as a separae unit to eliminate the danger of collapse should the adjoining wall give way. From the highest platform of the hospital there are two endless chains that operate to the ground level. At frequent intervals there are bars in the chain system, and the endless chain is so timed that the bars on the two chains move at the same time.

The bed is so placed that the handles rest on these rungs, and after releasing the brake the bed is slowly lowered to the ground. At the lower level, attendants roll the bed off the platform to safety and the system is ready for lowering another patient.

The Bed with Handles Extended is Being Placed on the Rungs of the Conveyor System.

Landing Platform Where the Bed is Removed from Conveyor.

Pumper Delivered to Avon, N. Y.—A 1,000-gallon pumper has been delivered to Avon, N. Y. At the tests, the Ahrens-Fox pumper delivered 1,100 gallons of water a minute.

Richmond, Va., Awards Cable Contract—The contract for furnishing 3,000 feet of fire alarm cable has been awarded to the Safety Cable Company of New York by Richmond, Va. The twenty conduit cable is being purchased for $450 a thousand foot and the ten conduit cable is supplied for $308 a thousand foot. The cable will be used in the fire alarm system.

View of Platforms and Conveyor System.

Essentials in Handling Oil Fires

(*Continued from page* 1008)

The gases formed are held in bubbles and make a blanket which is heavier than air and which completely smothers out the fire.

Water and the ordinary chemical solutions cannot be used advantageously on burning oil, paint, grease, and similar materials, for the reason that these materials will float on water and continue to burn—spreading the fire wherever the liquid runs. Even the "heavier than air" gases from chemical fire extinguishing solutions, including the very heavy gases of carbon tetrachloride, have little or no effect on fires of this nature. The real reason for the inefficiency of all "heavier than air" fire smothering gases on oil fires, except on very insignificant fires of this character, has not been generally recognized. The fact is, that the light volatile gases rising from the body of oil itself, by reason of their lesser density pass readily through any blanket of "heavier than air" gases, and continue to burn above this blanket and provide sufficient heat to generate a continuous and increasing supply of volatile gases. Under such circumstances the fire must continue to burn until the oil is entirely consumed. Furthermore, these "heavier than air" gases, whatever their fire smothering efficiency, and no matter how much heavier than air they may be, are always free gases, unconfined, easily blown away by the slightest wind, and sure to be sucked away by the draught of the fire itself, if the fire is of any extent. The problem has been, therefore, to confine these gases, and to make them form thick, durable, and more or less permanent blanket for fire extinguishing purposes. The problem has been solved by the scientific development and perfecting of the foam system.

Extinguishing Fires With Foam

An oil storage tank, 100 feet or more in diameter, and 30 feet high, holding, say, fifty thousand barrels of gasoline, surely presents an almost overwhelming problem in fire fighting—or, at least, used to do so. Such risks seem to be peculiarly susceptible to lightning. In fact, it may astonish a layman to be told that, were it not for lightning, such an oil tank would be as good a fire insurance risk as a dwelling house. When lightning strikes a risk of this kind, there is often an explosion; the roof of the tank is blown off, and instantly the entire surface of the gasoline is burning. No fire alarm is needed, for everybody for miles around will know that there is a fire. Sometimes the roof falls clear of the tank, but more often it settles back on the tank either in broken sections or in some distorted position. Water will only spread such a fire, and the fire will burn out before it can be put out. Free fire-smothering gases of any kind would count for naught; as they would be immediately sucked away by the tremendous draft, and even if the gases remained, the volatile gases of the oil would pass through them and continue to burn. But a thick coating of dry, fine, tough and tenacious foam, lighter than oil and made of minute bubbles confining carbonic acid gas, would surely extinguish such a fire if spread upon the burning oil surface in sufficient quantity. And that is exactly what the foam system is, and that is exactly what it accomplished.

The principle of the foam system is the same as that used in most of the chemical fire extinguishers, i. e., the generation and application to the fire of carbonic acid gas, with the addition of a foam producing agents in the mixture to hold the gas in the form of bubbles, so that its action shall be effective for an appreciable length of time over a wide surface of burning volatile material, such as a tank of oil.

The foam systems now generally in use require two separate storage tanks of suitable capacity, one to contain the acid solution which is commonly called solution "A," and the other the alkaline solution, or solution "B". From each tank a suction line runs to a cylinder of a duplex pump. Two delivery lines, one for each solution run from the pump, through the yard or plant under protection, and are brought together in one or more mixing chambers attached to the oil storage tank. These mixing chambers are of different types, but the best form is located on the wall of the oil storage tank, on the inside at the top, so that if the roof of the tank is blown off, the mixing chamber will be undamaged, nor can it be destroyed by fire before the foam reaches the tank. The mixing chamber is so constructed that oil can not flow back into the foam lines even if the level of the oil is raised to the top of the tank. The two solutions mingle in the mixing chamber and re-act on each other, instantly forming a fine, tough foam which rises in the mixing chamber and overflows rapidly, covering the surface of the oil. The controlling valves are located outside the fire walls near the main solution headers.

The Foam Generator

A later system of foam production and application entails the use of a foam generator built in the form of an injector. A single dry powder is fed into the hopper of the generator where it mixes with a stream of water being forced through the generator. The reaction of the powder and water upon combining produces the foam. As the generator is portable, it will find wide usage around certain types of oil plants where the services expected of it will not be too severe.

Modern Fire Alarm Engineering

(*Continued from page* 1012)

cut out plugs and see if some circuits are not cut off from manual key. Place circuits in correct position to operate.

Contacts on keys need cleaning. Clean up contacts to operate properly.

Instrument jack open on gong or joker board or protector boards. Look over this jack and correct fault.

Pin fallen out of pin switch on protector board. Replace pin to correct.

If semi automatic switch strikes a blow when reset—The switch which strikes the blow has an open or blown out resistance unit. Replace unit with new one.

If register or time stamp will not work—Register switch is in off position on gong or joker board. Set switch in the correct position.

Register local battery has open fuse, weak battery, low battery or other troubles. Get local cirup to register.

Register is run down. Rewind the register and test to see if it is working.

You may have other troubles to look up and the remedy may present itself in some other way than described here. You will have to go over the circuit or apparatus that is giving trouble and find it and correct it. When you correct a trouble on any fire alarm apparatus be sure you have found the trouble and can see the cause for it giving trouble before you place it back into service. Many times one believes they have found the trouble only to find out later that they have a great deal more. Always be thorough and you will succeed.

Specifications for Standard Pedestal

This specification was taken from a pedestal now in use and it can be changed for your own particular needs.

There will be one operator's pedestal upon which will be the following equipment:

(1) One recording set for recording timing and dating all outgoing signals over the () joker circuits. Said recording set to consist of () circuit puncturing register; automatic paper take-up reel and automatic time and date stamp; all of the same type as hereinafter specified for box circuits.

(2) One recording set for recording timing and dating all outgoing signals over the () gong circuits.

Said recording set to consist of () circuit puncturing register, () automatic paper take-up reel and () automatic time and date stamp, all of the same type as hereinbefore specified for the box circuits.

(3) One turret containing set of switches for semi-automatic operation of the () box circuits.

These switches shall be so arranged that after the first round of the alarm is received at the central office; the operator by throwing a switch can transmit the (signal) direct to the engine houses over the joker circuits. The switches shall have a locking device on them so as to lock all switches except the one in use. Said turret shall also contain all the necessary pilot lights to give indication of operation of circuits.

(4) One multiple key for the joker circuits and one multiple key for the going circuits (open or closed circuit) and to be arranged to transmit alarms over the entire circuits.

(5) Necessary switches shall be provided to cut out any or all circuits from operation in conjunction with the manual keys.

(6) The pedestal shall be of an art metal cabinet with marble top and trim around the base.

Symbol () should be filled in with the amount desired.

All equipment to be placed on the pedestal will have to be in the specifications or it will not be placed on the pedestal.

The next article will take up manual transmitters and repeaters of all types. It will include the description, installation, operation, wiring and repair of machines.

Sound Beach, Conn., to Purchase Service Truck—The fire department of Sound Beach, Conn., will purchase a city service truck equipped with a 40-gallon chemical tank and possibly a pump.

Birmingham, Ala., to Erect Four Fire Stations—Contracts have been awarded for the erection of four new fire stations in Birmingham, Ala., at a total cost of $111,880. Funds for the new improvement were provided in a bond issue that the people recently approved.

Dodge Yacht Burns in Hudson River—The $2,500,000 steam yacht "Delphine," owned by the widow of Horace E. Dodge, caught fire while the owners were ashore, and the craft burned to the water's edge. A maid saved jewels valued at $300,000 but $125,000 worth of Paris gowns were destroyed.

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Lansing, Michigan.
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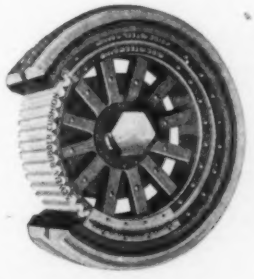
Martenez, Calif.
El Paso, Texas.
Woonsocket, R. I.
Toledo, Ohio



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Seattle, Washington
Oakland, Calif.
San Francisco, Calif.
Charleston, S. C.
Monterey, Calif.
Augusta, Ga.
Milwaukee, Wisc.
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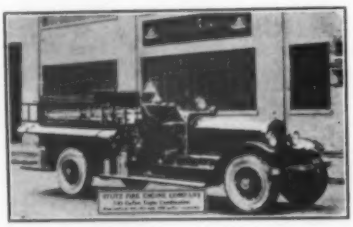

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Does not leak!—double duty—easy to operate—will stand alone with high pressure stream—wide area covered—turns 360° horizontally—70° vertically; sturdy. Has handled eight lines and delivered 1,900 gallons per minute. Many patented features.

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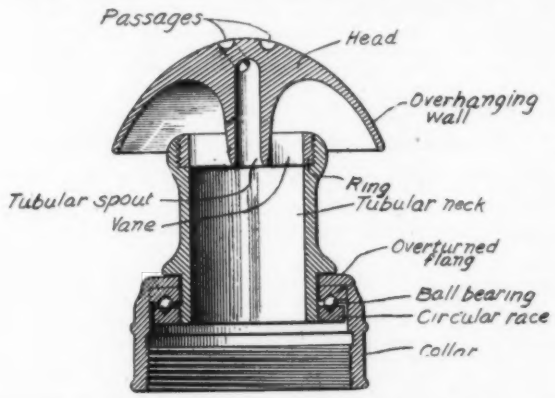
Recent Patents

Descriptions of Patents Recently Issued of Interest to Fire Departments—Self-Propelling Hose Nozzle—Fire Prevention Means

Self-Propelling Hose Nozzle

Sydney C. Sladden of Freeport, New York has been granted a patent (No. 1,587,194) for a design of a self-propelling hose nozzle. The object of this design is to provide a nozzle for directing streams upon objects in the path of the nozzle for removing same, and also to provide means self contained in the nozzle for propelling it.

The illustration is a longitudinal section of the nozzle constructed in accordance with this design. The device consists of a tubular neck the extremities of which are provided with screw



threads to receive a ring and to receive a circular race for ball bearings. A second race for the bearings is also provided. The neck has a collar which extends over the flange to lock the neck and parts associated therewith in service. The ball bearing furnished permits the neck and parts associated therewith to turn with very little friction.

The ring is connected with and supports the nozzle head. The head is approximately mushroom shaped, the body being circumferentially hollowed to form an overhanging wall. The head has an inverted tubular spout from which the water supplied to the nozzle is delivered in an approximately forward direction by means of the passages.

These passages are preferably inclined in opposite directions so that the water delivered by the spout is delivered adjacent to the axis of the nozzle. The object of the construction is to form in this manner a circular boring or washing action on any obstruction in the front of the nozzle. The external wall of the spout is shaped to form a parabolic path for the delivery of the water that strikes the wall adjacent to the apex of the curved surface.

The ring is connected with the spout by a series of vanes that are inclined so that they may be acted on by the water flowing through. The rotary action assists materially in the boring action.

Fire Prevention Means

A means for preventing fires and extinguishing them in tanks designed to hold inflammable liquids has been patented (No. 1,590,877) by Wilbert Black of New Orleans, La. The object of the inventor is to provide a simple means of extinguishing the liquid should it get on fire.

The large figure is a vertical section through a tank equipped with the device; the smaller illustration is the discharge head portion shown partially in section.

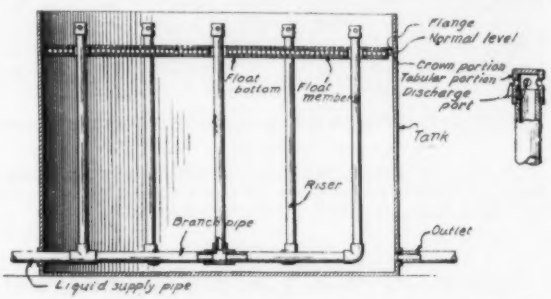
A tank is provided with a lateral outlet which may be of any desirable size, and is adapted to have liquid supplied to it in any suitable manner until the liquid in the tank reaches a desirable level. This outlet is located near the bottom of the tank.

The invention provides a non-inflammable surface covering for the liquid in the tank. This surface covering is a float which comprises a casing of small globular buoyant separate refractory members made of glass or other suitable buoyant refractory or relatively incombustible material. The float casing comprising the bottom, a top, vertical radial portions, and an endless body member connects flexibly the marginal edge portions of the top and the bottom of the float. The bottom and the partitions are made of buoyant wood while the top comprises the plate made of wood and covered with a thin sheet of metal. The body of the float casing has an outwardly extending annual flange which is in contact with the outer edge. This surface covering will practically exclude the atmosphere and therefore oxygen will not be permitted to enter to support combustion.

The design also provides a means for the extinguishment of flame. The liquid discharging conduit comprises a liquid supply pipe which extends through a lateral opening in the lower part of the tank to the center of the tank and is there connected with radially extending branch supply pipes. The supply pipe has a fluid tight fit with the wall of the opening in the tank and may lead from any suitable source of supply of liquid having fire extinguishing properties. Riser or delivery pipes extend vertically through the liquid in the tank from the outer ends of the branch pipes and from the main supply pipes. One of the risers is joined to the assembled portion of the main supply pipe on which they are supported so as to be in open communication with the supporting pipes.

The riser pipes extend above the level of the liquid in the tank through aligned openings in the top and bottom members of the float casing and vertical bushing, and may encircle the riser pipes and be secured in the aligned openings in the top and bottom of the float casing.

A discharge head or nozzle for the upper end of each riser pipe may be a cap having an imperforate crown portion and a tubular body portion which is secured on the upper end portion of the associated riser pipe. It is provided with radial discharge



ports which are located above the level of the associated riser pipe.

The number and the arrangement of the pipe is such that the entire surface of the tank will be sprayed.

Idaho Firemen Meet in Buhl

The meeting of the Idaho State Firemen's Association was held in Buhl on September 8–10. The following are some of the interesting papers that were presented at the gathering: "Matches and Smoking," by R. E. McEntire of Rexburg; "Defective Chimneys," by Chief Jack Bell of Twin Falls; "The Necessity of Fire Prevention," by Chief R. H. Stewart, Buhl; "Common Fire Dangers in the Home," by Chief R. C. Hamlett of Jerome; "Who Profits Most by Fire Prevention," by Chief H. E. Canine of Burley; "The Volunteer Fire Department and its Problems," by Chief H. E. Gilling of Rupert.

The association drafted a resolution for presentation at the next session of the state legislature for a law to change the state compensation act so that the volunteer and call firemen would be entitled to compensation in a manner similar to that awarded to paid firemen.

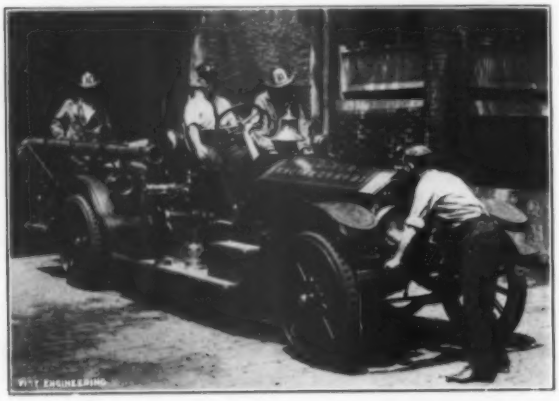
The following officers were elected: president, J. C. Boyd, Wallace, vice-president, R. E. McEntire, Rexburg; second vice-president, Chief R. H. Stewart, Buhl; secretary-treasurer, Willard Adams, Rigby. The next meeting place of the association is Wallace.

Insurance Men Urge Fire Alarm for Lake Worth, Fla.—The installation of a modern fire alarm system was urged by the leading fire insurance organizations in Lake Worth, Fla. It is estimated that the installation of the suggested system would save the local people about $10,000 annually in insurance premiums.

Washington, D. C., Company Makes Record

By cranking their fire apparatus and leaving the station within six seconds after the sound of the fire alarm gong, Company No. 21 of Washington, D. C., is believed to have established a national record and they have won possession of the Star Cup for a year. More than a second has been slashed from the winning record made last year by Company No. 23.

According to the rules under which the contest was conducted, the men were not allowed to touch the appartus until the fire alarm gong commenced to sound out the number. It was arranged that box No. 13 would be sounded, and after the first sound of the bell, the men were permitted to rush to their positions, the driver to his seat, and one fireman to the front to crank the engine. After counting the taps to get the location of the fire the company was off, and it was only six seconds after the alarm was sounded that the apparatus of the winning company crossed the sill of the fire station. The winning company of the year previous lost one second of valuable time when their engine missed fire, but the members



Company No. 21 of Washington, D. C., Who Established a Record

have the satisfaction of knowing that they reduced the record that won them the cup for the previous year.

Dust Ducts Cause Loss of Furniture Plant

(*Continued from page* 1018)

so that fire could have been burning therein without being detected.

Possibly the fault in operating at this fire was the failure of the department to make a thorough inspection before leaving the premises. There is little excuse for a fire rekindling in an establishment of this sort if proper care is observed when giving the fire the final "once over."

Had such an inspection been made it is very likely that no damage beyond the first small fire would have resulted.

This, then, is the first criticism of the operation, based upon the assumption that fire reached its second point of ignition through the ducts.

Suggested Method of Handling the Fire

The operations at the fire in the dust bin may be considered satisfactory with the one exception of failure to make a survey after fire was under control.

But assume that the fire could not have been avoided at the second point; suggestions for operating would be as follows:

Assign companies as done by the officer in charge and which was given in the last issue, also which is as described in a previous paragraph.

When the lines are in operation at this fire and the fire apparently well in hand, then the inspection should be made very thoroughly of all piping. The fact that the fire originated around one of the hoppers is sufficient ground for assuming that it might originate around other hoppers too. Designation of members of truck company to make a survey through the entire building will probably prevent the fire on the third floor of the sanding building from gaining a hold.

Now assume that such an inspection is made promptly and while the first alarm assignment is in operation. It is likely that the fire on the third floor of the sanding building will have gained but small headway and can be handled by a single line from the first company arriving and which is at the time of the discovery of the third fire, in operation at hydrant No. 4.

But if the fire on the third floor had attained appreciable headway and it is apparent that it has burned up through the ducts, then additional help should be called without delay.

If there is likelihood of fire burning elsewhere or burning through the ducts to other points a third alarm assignment would not be too much to call.

Upon the arrival of additional apparatus get lines in operation at the point where fire entered the third floor as well as the second fire and after extinguishing the fire at these points, see that water is sent through the ducts so as to extinguish any fire remaining therein.

Finally, make a thorough survey of all piping. As the piping is likely to be exposed such inspection can be readily made employing the simple method of feeling the pipe for heat.

Pipes of this sort readily conduct heat through them and any fire burning therein is quickly detected by the temperature of the outside of the pipe.

A fire in this type of establishment where there are so many ducts, all improperly protected at their hopper ends, is a serious problem for any department and only by the utmost care in making the inspection can the department feel safe in having the fire quickly extinguished.

Kentucky Chiefs Have Lively Meeting

A number of very interesting papers were presented at the convention of the Kentucky Fire Chiefs' Association held in Louisville on September 13-15. There were about 150 in attendance when the convention was formally welcomed by Mayor Arthur Hill. The response to the address was made by President Edward E. Cureton of Owensboro. He also read a report on the activities of fire departments in second and third class cities.

W. H. Shanks, a member of the state department on rates and fire prevention, read a paper on "The Fire Chief and Arson Cases." The paper will be printed in a future issue of FIRE ENGINEERING. In the absence of Chief Hensley of Ashland, his paper on "What Ashland Does to the Fire Bug." was omitted from the program. Clarence Goldsmith, assistant chief engineer of the National Board of Fire Underwriters, Chicago, read a paper on "The Fireman—His Relation to the Public." The entire afternoon of the first day was spent at the fire department's training school where the members of the association went through a short course under the direction of Lieut. Wm. Gurk, assistant drill master and Captain S. C. Render, instructor from the Kentucky Actuarial Bureau. All of Tuesday was also spent at the school.

On Wednesday the convention heard a report on the Inter-Chamber Fire Waste Contest. A resolution was offered concerning the death of William A. Brady, representative of the Boyer Fire Engine Company, and one concerning the death of Chief David Grummeissen of Ludlow.

Due to the absence of Chief William Jessie of Lexington, his paper on the two platoon system and civil service in Lexington was omitted. Chief W. S. Lipscomb of Hazard gave an interesting talk on the "Operation of Part Paid Call Fire Department."

Captain S. G. Render read a paper taken from FIRE ENGINEERING of July 10, 1926 on the compensation of volunteer firemen for injuries received in line of duty. Captain John B. Kirley gave a talk on "Ways and Means of Effective Salvage Operations in Small Fire Departments." A practical demonstration as to the salvage covers was made at the training school. One of the concluding talks was that of George H. Parker, manager of the Kentucky Actuarial Bureau on the relation of fire insurance to fire protection.

The new officers of the association are Alex Bache, Louisville, president; John Moltenberry, Bowling Green, vice-president; J. M. Nelson, Glasgow, 2nd vice-president; S. G. Bender, Louisville, secretary-treasurer; Richard Knipp, Middlesboro, Edward E. Cureton, Owensboro, and J. H. Stolay, Henderson, members of the board of directors. The following committees were appointed:

Pamphlet committee—Chiefs Coy Lanhan, Corbin, John Clabrue, Carollton and W. T. Stewart, Wilmore.

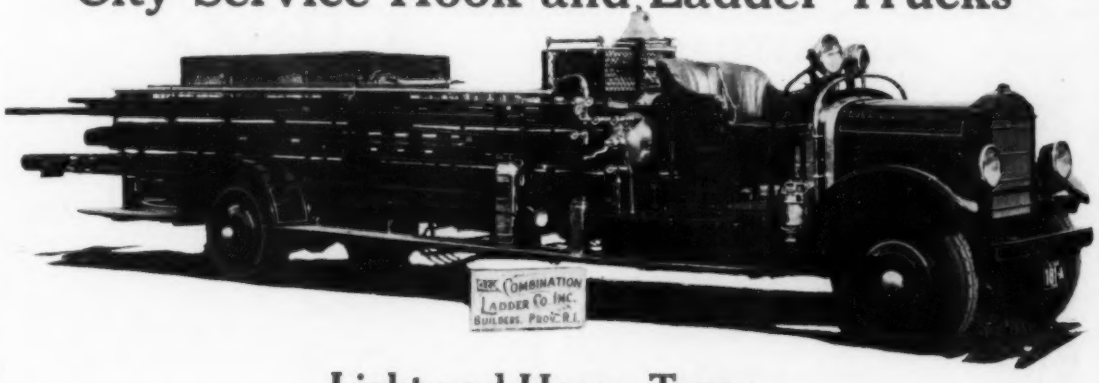
Auditing Committee—Chiefs J. V. Farmer, Madisonville, W. S. Lipscomb, Hazard, and J. B. Kirley, Louisville.

Exhibit Committee—Chiefs E. E. Cureton, Owensboro, H. Harris, Shelbyville, and Capt. S. G. Render, Louisville.

Legislative Committee—Chiefs E. E. Cureton, Owensboro, Edward Griffith, Covington and J. M. Slaughter, Paducah.

Chief Burras Hensley was appointed the association's representative to the convention of the International Association of Fire Engineers. The convention will meet next year in Owensboro.

City Service Hook and Ladder Trucks



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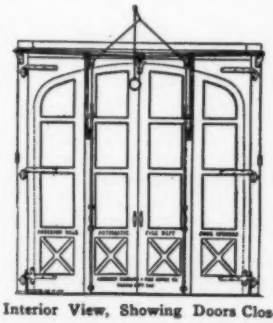
Interior View, Showing Doors Closed.

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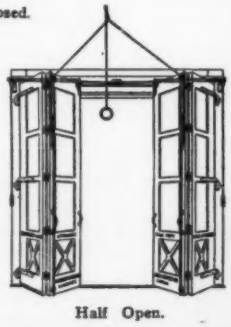
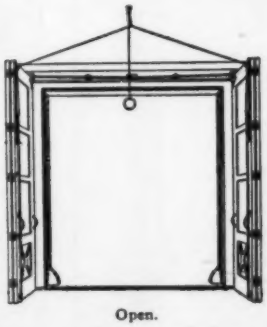

Half Open.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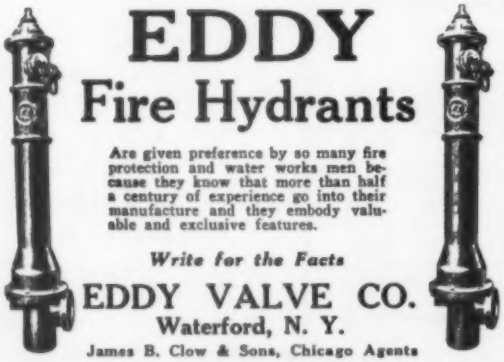

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FIRE DEPARTMENT ACTIVITIES

Chinook, Mont., Receives Ladder Truck—A ladder truck has been delivered to Chinook, Mont.

New Fire Limits Established in Clearfield, Ia.—A new down town fire limits has been drawn in Clearfield, Ia.

New Fire Station for Northboro, Mass.—A new central fire station is being erected in Northboro, Mass.

Piedmont, Cal., Firemen Receive Pay Increase—The firemen of Piedmont, Cal., have been granted an increase of $5 a month.

Former Baton Rouge, La., Chief Dies—Hugh Waddili, former fire chief of Baton Rouge, La., died suddenly at his home at the age of fifty-five.

New Fire Station Opened in Fort Wayne, Ind.—A new fire station has been dedicated in Fort Wayne, Ind., and it will house the No. 10 company.

New Apparatus for Charlotte, Mich.—Charlotte, Mich., has ordered a Reo speedwagon chassis and the necessary equipment for a triple combination pumper.

Whitefish, Mont., to Purchase Gas Masks—Chief Rude Miller of Whitefish, Mont., has placed an order for gas masks for the use of the fire department.

Jackson, Minn., to Charge for Outside Calls—The fire department at Jackson, Minn., will charge $25 for all calls made outside of the department's district.

Saugerties, N. Y., Purchases Fire Apparatus—The Centerville fire department of Saugerties, N. Y., has purchased a Stewart fire appartus which the district recently voted for.

Sayville, N. Y., Firemen Ask for New Apparatus—The firemen of Sayville, L. I., N. Y., have asked the fire commissioners for a new hook and ladder truck estimated to cost $10,000.

New Fire Alarm System Opened in Cleveland, O.—The new fire alarm system of Cleveland, Ohio, has been placed in service by Chief George Wallace. The system was installed at a cost of $200,000.

Arizona Towns Purchase Community Apparatus—The towns of Safford, Thatcher and surrounding school districts have purchased a combination hose car and chemical, jointly. The apparatus was purchased at a cost of $15,000.

Richmond, Cal., to Erect Drill Tower—A drill tower will be erected in Richmond, Cal., at a cost of $750. The tower will be fifty feet high, and will be used to train members of the fire department, as well as to conduct tests for department examinations.

Southbridge, Mass., Rebuilding Station—The central fire station at Southbridge, Mass., is being rebuilt to permit the housing of a 75-foot aerial ladder and the erection of a repair shop in the rear of the station. While the alterations were going on, the men slept in a tent across the street from the station.

Ballston Spa., N. Y., Acquires Pumper—A 400-gallon Foamite-Childs pumper equipped with two forty gallon chemical tanks has been delivered to Ballston Spa., N. Y. The apparatus is assigned to the Eagle Fire Company which was organized in 1818 and is the oldest company in the village.

Several Suspicious Fires in Shrewsbury, Mass.—The office of the fire marshal is investigating several fires that have occurred in school houses in Shrewsbury, Mass., and which indicates that they are of incendiary origin. It is believed that arrests will be made soon.

Theresa, Wis., Holds Firemen's Tournament—The annual tournament of the Dodge County Firemen's Association was held in Theresa, Wis., and was attended by thirteen companies. At a business meeting of the association all of the old officers were re-elected and Reeseville was selected as the place of the next convention.

Fitchburg, Mass., Interested in New Drill School—The firemen of Fitchburg, Mass., are very much interested in the new drill school that has been established under the direction of Capt. Rood at the rear of the Central Fire Station. Reports indicate that the men are showing the results of excellent training.

Lake Norden, S. D., to Pay Volunteers—The council of Lake Norden, S. D., has voted to pay the volunteer firemen $1 an hour for the first hour and fifty cents an hour for additional hours. Where the apparatus is called to nearby towns, the charge will be $25, and $50 where the apparatus is used for more than one hour.

Fitchburg, Mass., Celebrates Complete Motorization—A parade of the entire fire department was held in Fitchburg, Mass., to celebrate the complete motorization of the fire department. While the parade was in progress, it commenced to rain, and the men were drenched. In spite of being wet, the men made a very fine appearance.

Spokane, Wash., Wants Two-Platoon System—The various labor organizations in the city have joined with the firemen in their pleas for the establishment of a two-platoon system. At a meeting of the city council, they refused to consider a provision in the budget that would permit the addition of thirty-six men at an annual expenditure of $54,000.

New Time Off for Boston, Mass., Firemen—Mayor Nichols of Boston, Mass., has proposed a new rule of granting seventy-five minutes time off duty for meals for the men who are working on the "long day on" shift under the two platoon system. It is believed that this practice will revolutionize the workings of the two-platoon system in other cities.

Birmingham, Ala., Firemen Want Increase—The firemen of Birmingham, Ala., have petitioned the city council for an increase in their monthly salaries of $25 a month. If the fire department increase is granted, the city will have an added expenditure of $76,620. In the petition the men stated that they are not now earning enough to support their families.

Superior, Wis., Firemen Have Frequent Drills—The firemen of Superior, Wis., receive frequent instruction in the use of ladders and other equipment on the east side of the city hall. Detachment of the firemen are assigned for instruction, and the practice will continue until all of the firemen have been instructed in the use of the appliances. The school is held daily.

Plans Made for Nebraska Convention—It is expected that at least 1,500 will attend the convention of the Nebraska State Volunteer Firemen's Association to be held in Columbus, Neb., on January 18-20. A committee has been appointed to ensure that the many who will attend will find accommodations in the various hotels and in some of the homes of the residents.

Kansas City, Mo., to Have Drill Master—A drill master will be appointed for the fire department of Kansas City, Mo., in accordance with the latest practice in many of the larger cities. Each fire company will be given a week's training in handling the various appliances, and in the newest methods of performing the work. It is also planned to establish a school for the men.

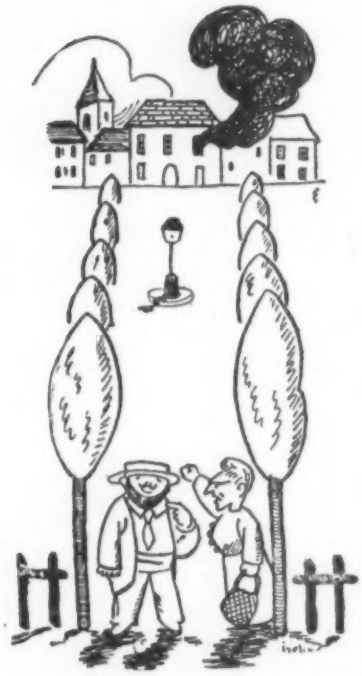
Animal Trainer Dies in N. Y. Menagerie Fire—A warehouse in which many trained animals were boarded pending their appearance in New York shows, burst into flame and destroyed sixty trained animals and birds, and resulted in the death of an aged animal trainer. The police had to fight back many animal trainers who risked their own lives to save those of their pets. The body of the burned trainer was found beside that of his trained kangaroo.

Sioux City, Ia., Firemen Granted Wage Increase—The firemen of Sioux City, Ia., have been granted an increase of at least $30 a month in their monthly salaries. Under the new law, the city will have an added expense of $31,000. The salary of the chief is now $3,180; first assistant chief, $2,760; second assistant chief, $2,760; captains, $2,340; lieutenants, $2,280; third year men or higher, $2,100; second year men, $2,000; first year men, $1,920.

Indianapolis, Ind., Wants I. A. F. E. Convention—The board of safety of Indianapolis, Ind., have started a scheme to bring the 1927 convention of the I. A. F. E. to that city. The Police and Firemen's Band will journey to New Orleans where the general invitation will be extended. A committee has been appointed consisting of Chief Jesse A. Hutsell, chief of police and the assistant city attorney. A baseball game will be held to finance the expense of sending the band to the convention at New Orleans.

Delaware County Firemen Not to Attend "Sesqui"—The members of the Delaware County Firemen's Association will not attend the convention of the State Firemen's Association at the Sesquicentennial in Philadelphia during October. It is charged that the committee of the fair are using the parade which is part of the convention as a means of making money for the Sesquicentennial. A short line of march has been arranged so, it is alleged, that it will be necessary for a large number to purchase tickets to the fair in order to be able to see the parade.

FALSE ALARMS



"Miserable object! Why don't you go and save your wife from the fire."

"I can't—I've got on a celluloid collar.

Le Journal Amusant (Paris)

TALENT WASTED

At a fire in a brick building, some one who had imbibed too freely from the forbidden bottle managed to break through the fire lines undetected, and walking up to a fireman who was playing a hose line on the side of the building he asked, "Shay brusser, whatcha trying to do? Washing off 'at building?"

PLENTY ON ROLL

An enterprising hose salesman dropped into a city engine house one morning just as the shifts were changing and called to the captain, "Hey Cap, got any false alarms today?" The captain had had a bad morning of it, and he was not in too jocular a mood.

"I'll say I have," he replied, "and if you have anything to say to them, get a move on and be quick as a lot of them will be going home as soon as I call the roll."

WORTH TRYING FOR

In a small city that boasted of a small but very efficient fire department, one of the prominent citizens had donated several prizes to be competed for by the members of the department. Bill had won several of the cups and he was accorded the honors incidental to the champion fire-fighter of the town. About the time that Bill had won his last cup, his wife deemed it time to further honor the occasion by the presentation of three healthy babies—triplets. The boys believed that this called for another cup and he was presented with the token in formal style and with all the honors thereto. In addition, the boys gave him a lot of good, fatherly advice.

He was speechless and overcome at the unexpected gift. After he had found his voice, he recovered enough to say that he appreciated the thoughtfulness of the company, and he asked if he could take the cup home and show it to his wife.

"Sure thing," shouted his fire department comrades. "Take it home and keep it there."

"But don't I have to win it three times before it is mine?" asked Bill in great surprise.

Ben Higgins never would be passed,
He bragged his car's endurance.
He passed a pumper with a glance,
His wife has his insurance.

A SAD SCENE

Clang, clang, clang! The fire engines are dashing down the street! In the sky there is a bright red glow. Something must be burning. Why, of course! It's the schoolhouse! The flames are licking the eaves and the cornice; they're spreading; the timbers fall; it's ablaze! Clang, clang, clang! The flames mount higher; now the walls are falling; the books have all burnt up! At last there is nothing but a heap of embers and ashes where the schoolhouse used to stand. . . .

Little Johnny has just had his annual dream the night before school reopens.—*Life*.

JUST PRACTICING

"Does your husband still walk in his sleep?"

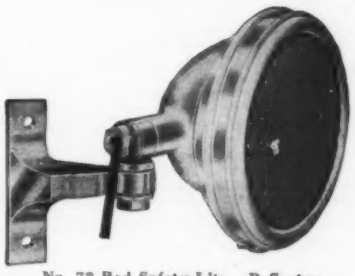
"I should say he does. Last night I caught him hanging on the window shade—he thought he was hanging on to a pompier ladder."

AND HE'S THE ONE I'VE DEPENDED ON FOR MY BIG FAMILY'S SAFETY— THERE MUST BE SOMETHING WRONG WITH THESE NEW SPECS!
BARRY'S OPTICAL SHOP
CLEVELAND FIRE DEPARTMENT
CLEVELAND FIRE DEPT. A1 RECORD

Maybe the Glasses are Needed.

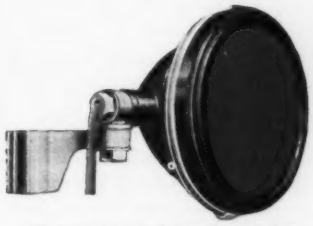
S & M Special Lighting Equipment

Red Safety-Lites, Head-Lites, Search-Lites, Pick-Up-Lites and Spot-Lites for Fire Apparatus, Police Cars and Ambulances.



No. 72 Red Safety-Lite. Reflector 5¾" diameter.

No. 90, 80 and 70 Spot-Lites. Reflectors 7½", 6½" and 5¾" diameter.



No. 90, 80 and 70 Red Safety-Lites. Reflectors 7½", 6½" and 5¾" diameter.

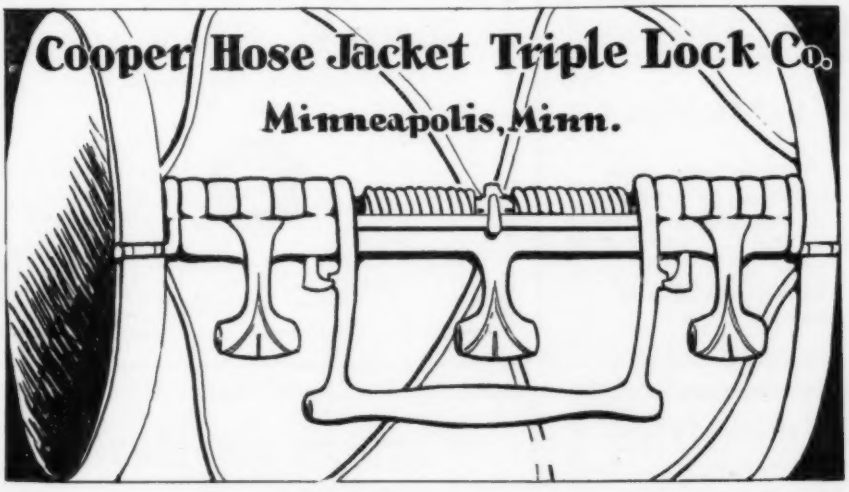
Use S & M Red Safety-Lites for your protection. They can easily be seen for several blocks and are used as a warning to pedestrians and all traffic in the direction of approach of Fire Apparatus, Police Cars and Ambulances. None of these departments should be without them. S & M Safety-Lites protect the Motorist, the Pedestrian and the Personnel of Police and Fire Departments

Write for descriptive catalog and prices

S & M LAMP CO. (Inc.)

118 W. 36th Street
Los Angeles, Calif.

Manufacturers of high grade lighting equipment



Better Play Safe Chief!

Have "Old Reliable" Cooper Hose Jackets on Hand

The "Old Reliable" Cooper Hose Jacket and Universal Coupler with improved steel triple lock will stand any pressure and insure you against any leakage or coupling trouble. They give unlimited coupling facilities. Instantly adjustable without cutting off stream and are indispensable, indestructible, inexpensive. Instantly repairs all leaks. Made in sizes for 2½ and 3½ fire hose and small sizes for chemical hose. No fire department is complete without one or more as part of their standard equipment, and we shall be glad to send complete information and prices on request.

Cooper Hose Jacket Triple Lock Co., Minneapolis Minn.

New Victor Gas and Fume Mask

Better Rubber. Longer Life. Better Fitted. Moulded to Fit the Face. Better Vision. Renewable Lenses. Better Air. Better Work. Low Prices. High Quality.

Over 5,000 Victor Gas Masks in Service

Full Line Fire Dept. Supplies and Equipment.

New 43 Edition Catalog on Request

The Woodhouse Mfg. Co., Inc

35 Warren St., New York

D. A. Woodhouse, Pres. and Gen. Mgr. George J. Kuss, Vice-Pres. and Treas.

GRETHER

The same quality with improvements.

Be sure to get your copy of our new No. 3 catalog.

Your inquiries and orders will have careful and prompt attention.

The Grether Fire Equipment Company

Dayton, Ohio

HAHN

Motor Fire Apparatus

Write for literature and prices on our 250, 350, 500 and 750-gallon triple combinations, chemical and hose combinations and city service trucks.

Hahn Motor Truck Co.,

Hamburg, Pa.

The Schavoir Gas Mask

The latest and most advanced development in gas masks. Fire officials everywhere should get the facts.

Write for Complete Information

Schavoir Rubber Co. Stamford, Conn.

The Perfect Satisfaction and economy of wearing the

"FAMOUS KALAMAZOO"

Firemen's Uniforms has been proven by thousands of firemen. Catalog F501 will tell you all about them.

The HENDERSON-AMES CO.

KALAMAZOO, MICH.

JOHN H. CLAY, INC.

1320 Ridge Ave., Philadelphia, Pa.

Established 1864

Manufacturer Fire Dept. Supplies: Automatic Door Spring Outfits and All Kinds of Hydrant Connections.

JACOB REED'S SONS

Founded 1824 by Jacob Reed

FIREMEN'S UNIFORMS

Thoroughly tailored of especially selected fabrics. Uniforms that look well, wear well and that will give entirely satisfactory service.

Reed's Uniforms are most economical because they represent full value for the amount expended.

Write for catalog and prices.

1424-1426 Chestnut St., Philadelphia, Pa.

When in the Market for New Equipment

please write us and we shall be glad to have the right manufacturers provide you with complete specifications and prices for your consideration. This service won't cost a cent nor place you under any obligation whatever. We just want to cooperate both with you and with manufacturers in every possible way.

FIRE ENGINEERING
225 W. 34th St., N. Y. C.

PROPOSED IMPROVEMENTS

Roscoe, Washington Co., Penn.—Funds being raised for the purchase of a new piece of apparatus for the fire department.

Pittsburgh, Allegheny Co., Penn.—City Council passed ordinance setting aside the sum of $440,000 from the bond funds for the purchase of new fire apparatus.

Jenkins (Mail Pittston) Luzerne Co., Penn.—Jenkins Township Volunteer Hose Co. No. 1 has applied for a charter.

Herminie, Westmoreland Co., Penn.—$5,000 has been raised by popular subscription for the purchase of fire equipment. (Preliminary mention Oct. 4th.)

Boswell, Somerset Co., Penn.—Boswell Volunteer Fire Company raising funds for the purchase of new equipment.

Wheeling, Ohio, Co., W. Va.—Chief Edw. A. McGranahan, Fire Department requested that immediate steps be taken to purchase a new fire engine for No. 10 station. Estimated cost $15,000.

Union Grove, Racine Co., Wis.—Myra Moe was appointed to succeed Floyd Coling as chief of the fire department here.

Argo Pinellas Co., Fla.—New fire house to be erected here soon.

Bardstown, Nelson Co. Ky.—City Council at recent meeting passed ordinance providing for a paid fire department. Fire apparatus and equipment to be purchased.

Ruston, Lincoln Co., La.—Plans and specifications completed for erection of new fire station.

Charleston, Mississippi, Co., Mo.—To purchase new fire apparatus and erect a fire station.

Union, Union Co., N. J.—Steps have been taken for the organization of another volunteer fire company in District No. 1. Chas. Reckemeier, Colonial Ave. is interested. Additional apparatus is to be purchased

Gates (Mail ? Lincoln), Park Co., N. Y.—Fire district to be formed here.

McGrann, Armstrong Co., Penn.—Volunteer Fire Department raising funds to purchase new fire apparatus.

Fostoria, Seneca Co., Ohio—Fire department elected E. A. Doe as president.

Fremont, Sandusky, Co., Ohio—Mayor advocates the installation of a new fire alarm system here, also the general improvement of all fire fighting equipment.

Frankfort, Ross Co., Ohio—Council considering the purchase of a chemical car for use in rural districts as well as in the village.

East Mauch Chunk, Carbon Co., Penn.—Fire department has elected George M. Genshrt as Chief and Frank Bench, president.

Lake City, Calhoun Co., Iowa—Fire department raising funds for the purchase of a new piece of apparatus.

Danville, Boyle Co., Ky.—A bond issue will be voted upon soon for the purchase of a ladder truck and other equipment for the fire department.

Royal Oak, Oakland Co., Mich.—In the 1927 budget the sum of $50,000 has been recommended for fire station sites.

Pontiac, Oakland Co., Mich.—At coming election in November, city will vote on a $170,000 bond issue; two new fire stations and equipment; and a $30,000 bond issue for extension of fire alarm system.

Argyle, Marshall Co., Minn.—Village to purchase new fire hose.

South River, Middlesex Co., N. J.—City Council has approved of the plans for the purchase of a new $10,000 pumper for the fire department.

Pitman, Gloucester Co., N. J.—Pitman Fire Patrol raising funds for the purchase of 600 feet of fire hose.

Leetonia, Columbiana Co., Ohio—Leetonia Business Men's Club sponsoring campaign to purchase electric siren for fire department.

Ironton, Lawrence Co., Ohio—At election to be held in November, city to vote on a $21,000 bond issue for fire department improvements. (Preliminary mention May 6.)

Millersburg, Holmes Co., Penn.—Millersburg Fire Company elected Charles Shott chief and Mark Sausser as president. Request was made to City Council for purchase of 200 feet of fire hose.

Please Let Us Know

if you fail to find in our advertising pages any items that you are interested in. FIRE ENGINEERING stands ready to put you in touch with manufacturers of anything you may need, either now or in the future. 225 W. 34th St., N. Y. C., will reach us. A card will do to let us know your wants.

Open for Connection

Fire Apparatus Sales Manager

Thoroughly capable and experienced fire apparatus man, with wide acquaintance among fire officials, and an unusually successful sales record, is open for engagement.

Address: Box 124, % FIRE ENGINEERING, 225 West 34th St., N. Y. C.

9/25/10/10

Fire Chief Position Wanted

Man with exceptional qualifications would like position of fire chief in growing town. Over sixteen years practical experience and thoroughly familiar with all phrases of fire fighting. Will gladly furnish complete information on past work, and can give best of references.

Address: Box 125, % FIRE ENGINEERING, 225 West 34th St., N. Y. C.

9/25/10/10

CONVENTION DATES

Oct. 12-15—PACIFIC COAST ASSOCIATION OF FIRE CHIEFS. 33rd Annual Convention, Fresno, Cal. Secretary, Chief Jay W. Stevens, 1014 Merchants Exchange Building, San Francisco, Cal.

Oct. 13-15—FIRE MARSHALS OF NORTH AMERICA. Annual Convention, Memphis, Tenn. Secretary, C. L. Topping, State Fire Marshal of West Virginia, Charleston, W. Va.

Oct. 19-22—INTERNATIONAL ASSOCIATION OF FIRE ENGINEERS. 54th Annual Convention, Hotel Roosevelt, New Orleans, La. Exhibits at U. S. Army Base Bldg., Dauphine and Poland Sts., Secretary, Chief James J. Mulcahy, Yonkers, N. Y. Chairman Exhibit Committee, Chief Wm. F. Daley, Brockton, Mass.

Oct. 20—OFFICERS' ASSN. FIRE PATROLS, SALVAGE CORPS AND PROTECTIVE DEPTS. OF U. S. AND CANADA. Meeting at New Orleans in connection with I. A. F. E. Convention. Secretary, John Ashmead, 76 William St., New York City.

Oct. 26-29—FIRE FIGHTERS' SHORT COURSE. Second Course, Iowa State College, Ames, Ia. Address, L. J. Murphy, Municipal Engineer, Engineering Extension Department, Iowa State College.

Nov. 10-11—MICHIGAN STATE FIRE CHIEFS' ASSOCIATION. First annual convention, Kalamazoo, Mich. Chief Charles H. Crampton, Bay City, president; Chief F. Ford, Highland Park, secretary.

Jan. 18-20, 1927—NEBRASKA STATE VOLUNTEER FIREMEN'S ASSOCIATION, 45th Annual Convention, Columbus, Neb. Secretary, H. A. Webbert, Kearney.

Aug. 14-16, 1927—NEW YORK STATE PERMANENT FIREMEN'S ASSOCIATION. Annual convention, Elmira, N. Y. Frank A. Emden, secretary-treasurer, 1200 Lenox Ave., Utica, N. Y.

Sept. 7-8, 1927—MISSOURI STATE FIRE CHIEFS' ASSOCIATION. 5th Annual Convention, Kirksville, Mo. Secretary, District Chief J. T. Lynch, Kansas City, Mo.

Sept. 7-8, 1927—MISSOURI ASSOCIATION OF FIRE FIGHTERS. 2d Annual Convention, Kirksville, Mo. Secretary, M. J. Mulvoy, 3500 S. Grand Boulevard, St. Louis, Mo.

New Trade Literature Received

The following literature descriptive of up-to-date methods and equipment for fire prevention and fire extinguishing, has just been issued for general distribution, and can be procured by writing to the concern mentioned. Those desiring additional trade literature in which they are interested may use our regular "Information for Buyers" Page, listed in the Advertising Index.

S & M Lamp Co., Los Angeles, Cal.—A folder has been issued describing special lighting equipment for fire apparatus including head-lites, spot-lites, search-lites and safety-lites. It contains many illustrations.

Benjamin Electric Manufacturing Co., 120 S. Sangamon St., Chicago Ill.—Illustrated catalogue showing industrial signalling systems and fire alarm sirens. Several of the wiring diagrams for the appliances are illustrated.

Peter Pirsch & Sons Co., Kenosha, Wis.—Leaflet describing the new pressure generating type of foam extinguisher. Extinguisher can be mounted on existing apparatus.

Louisiana Firemen Elect Crowley's Chief

At the convention of the Louisiana State Firemen's Association held in Donaldsonville, La., on September 18, an interesting paper was delivered by Emile Hebert of Plaquemine on the care of fire apparatus; another one on "Traffic Interference With Firemen and Fire Department," was read by Chief Miles of Crowley.

Memorial services were held at the Grand theatre. Two towns made bids for the 1927 convention but Opelousas later withdrew, giving Ponchatoula a clear field. Both the mayor of Hammond and the mayor of Ponchatoula thanked the convention for the selection made.

A luncheon was served at the Elks' Club, a dance was arranged at the hall of the Knights of Columbus, and a smoker was given at the Elks' Club.

The new officers of the association are Westley Miles of Crowley, president; Chief Bogan of Baton Rouge, first vice-president; Chief Blazer of Lafayette, second vice-president; Paul Naquin of Thibodaux, secretary; G. T. Hanson of Westwego, treasurer and Chief Kleinpeter of Gretna, delegate to the 1927 convention of the International Association of Fire Engineers.

California Firemen Approve Platoon System—At the convention of the California State Firemen's Association held in Long Beach, the delegates favored legislation that would make the adoption of the platoon system for the fire department compulsory.

Guttenberg, N. J., Firemen Fight for Shut-Off Nozzles—After an interesting squabble, the firemen of Guttenberg, N. J., succeeded in having the city council grant them permission to use the shut-off nozzle. The councilmen wanted to discontinue its use because of the rupture of many lengths of hose when the nozzles were suddenly shut off.

RED ARROW SIREN

Siren with Storm Hood

1. Double-tone, and of greatest carrying power.
2. Ball bearings throughout.
3. Accurately machined and balanced.

30 Days' Free Trial

Write for Circulars

DECOT MACHINE WORKS
Sauk City, Wis.

In a HENDERSON Uniform

you always get correct tailoring, dependable quality, reliable workmanship, at the lowest prices consistent with values.

Catalogue illustrating the popular Styles of Firemen's Service Parade Uniforms or for prize contests, as well as Shirts, Belts, Hats, Caps, Badges, Banners, &c., mailed on request.

Write giving Number of Outfits desired and color Cloth preferred.

HENDERSON & CO.
11th & Race Sts., Philadelphia, Pa.

When Fighting Fire

Across Railroad Tracks
Protect Your Hose Lines and Apparatus
with our
Fire Department Emergency Railroad Train Stops

Burn Red for Twenty Minutes

12 train stop lights for $5.00. In neat box for apparatus.

CENTRAL RAILWAY SIGNAL COMPANY
NEEDHAM HEIGHTS, MASS.

LARKIN Shut-off Nozzles

Over 2000 Fire Departments

have 15,000 Larkin Shut-off Nozzles in service. They have a successful record that is not exceeded by any article used in the fire service. Specify and insist upon them in buying new apparatus.

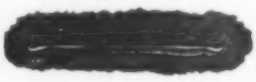
Write for catalog

The LARKIN Mfg. Co.
Dayton, Ohio

High Grade Fire Dept. Supplies of All Kinds

BI-LATERAL FIRE HOSE

THE BI-LATERAL FIRE HOSE CO.
230 West Randolph St., Chicago, Ill.



If you purchase BI-LATERAL FIRE HOSE it will increase the value of your hose-carrying apparatus more than the cost of the load of Bi-Lateral Fire Hose.

We can load from 25% to 33⅓% more and when coupled with rocker lug couplings the Bi-Lateral hose makes an apparatus one to be proud of and as near perfect as possible to do quick and efficient service.

Much Better Than We Expected

is the verdict of those using the

DONTFEAR Smoke and Fume Respirator

Asst. Chief G. L. HOWE, of the Ridgefield Park, New Jersey Fire Department, writes: "Ship ten Dontfear Smoke and Fume Respirators to complete the dozen. We have two at present that your representative left here and have found them satisfactory."

Send For Descriptive Catalogue

No Sponge. Price $5. With Airtight Goggles $5.60

Gibbs-Wahlert Mask Co.
388 Jay St., Opp. Fire H'q'trs. Brooklyn, N. Y.

The Jaeger Fire Pumper

for Chevrolets, Fords, Dodges, Reos and Fordson Tractors.

The Jaeger Auto-Powered Pumper makes use of the 15 to 30 brake horse-power in the above named cars or trucks, at a price the smallest community can afford to pay and thus provide fire protection at a fraction of the cost of other apparatus.

Send for complete details.

Jaeger Portable Power Corp.
Woodbridge at Rivard St., Detroit, Mich.

Cloth Uniform Caps for Firemen

Made of high quality blue uniform cloth, guaranteed not to fade. Cut on the New York Fire Dept. regulation pattern. Price $2.25, Postage extra. Other grades, $1.75 and up.

GEORGE BRUNSSEN COMPANY
151 Greene St., New York

Eastman Deluge Sets provide for fighting large fires in the simplest and most practical manner possible.

Be sure to specify Eastman Nozzles.

Eastman Nozzles and Deluge Sets are

Designed by Engineers

who for over thirty years have specialized in equipment for producing superior fire-fighting streams in all sizes unsurpassed for solidarity, distance and effectiveness, and safely handled under all pressures.

WRITE FOR CATALOG

SAMUEL EASTMAN COMPANY, Concord, N. H.

Do what This Chief Did

A well-known Fire Chief of one of our large cities specified Signal Two Collar Shirt, number 25, for his entire department.

With all the men wearing the same style and kind of shirt the department is now absolutely uniform, and the Chief and his men take pride in their appearance.

This Signal Shirt is long-wearing, dressy and practical. The two collars save wear and washing.

Signal Shirt Company
Racine, Wisconsin

Signal

Successful Since Sixty-Eight

The Worcester Fire Alarm Signal says "Fire." Its call is far-reaching and distinct, and because of the mechanical perfection in design and workmanship, harsh, objectionable screeches are eliminated.

This alarm has been perfected by many years of manufacturing experience, and is giving complete satisfaction in countless cities and towns.

Write for Catalog R-51.

Union Water Meter Co.

WORCESTER, MASS.

New York Office: 50 Church St.

Phila. Office: 539 Real Estate Trust Bldg.

(non-corrosive)

Novo Acid Jars and Holders

of every description, stronger than lead and non-corrosive. Used by departments throughout the country.

Chemical Tanks and Lally Quick Opening and Self-packing Top for Chemical Tanks

Lally Improved Fire Hose Couplings

Fire Extinguishers and Charges

Fire Hose and Fire Department Supplies in General

LALLY FIRE APPLIANCE CO.

Wilmington Brass Co.

Wilmington, Del.

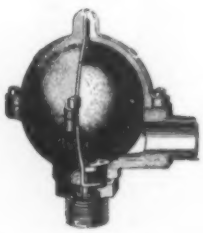
PROTECTUS

Fire Service Water Meter

The Only Fire Service Meter

Approved by Underwriters' Laboratories, Inc.

Red Top Relief Valve



The only water relief valve approved by Underwriters' Laboratories, Inc. Saves fires resulting from explosions of domestic hot water boilers.

Unless fire lines are adequately metered Water Departments lose thousands of dollars in revenue every year. This is due to the use of volumes of water for other than fire purposes. Protectus Meters either stop indiscriminate use of water, or accurately measure and register all flows, thus insuring protection from loss of revenue.

Protectus Meters are paramount in durability under heavy duty over a long period of years. They are an assurance against frequent repair costs.

Demands by Underwriters' Laboratories that a fire line meter must operate with unfailing reliability and minimum loss of head, have been definitely met by one meter—the Trident Protectus.

NEPTUNE METER COMPANY

Pioneers in Progress

50 EAST FORTY-SECOND STREET, NEW YORK CITY
NEPTUNE METER CO., LTD., 345 SORAUREN AVE., TORONTO, CAN.
Boston Chicago San Francisco Atlanta Los Angeles Seattle Portland St. Louis Denver

Help Yourself! Free Service! Here's the Combination!

Just run down the list of equipment and jot down on the coupon below the numbers that indicate the equipment in which you are interested. Then fill out rest of the coupon and mail it to us.

We will then request the leading manufacturers of such equipment to send you descriptive literature and prices direct without any cost to you or obligation whatever.

The manufacturers we notify will gladly do this because they are advertisers and good friends of this publication and want to cooperate with our readers in every way possible in the improvement of their departments. So help yourself! Get what you want!

Here's Your List of Fire Protection Equipment and Supplies

1 Acid Siphons.
2 Adaptors for Changing Hydrant Threads.
3 Acid Jars and Rings.
4 Aerial Ladders, Detachable.
5 Aerial Trucks.
6 Alarms, Siren, Electric.
7 Alarm Systems, Industrial.
8 Alarm Systems, Municipal Telegraphic.
9 Alarms, Thermostatic.
10 Asbestos Clothing.
11 Badges, Insignias, Buttons, etc.
12 Banners, Trumpets, etc.
13 Battery Jars.
14 Battery Zincs for Fire Alarm Batteries.
15 Bells, Fire Alarm, Municipal.
16 Body Equipments.
17 Boxes, Gongs, Reels, Registers, Fire Alarm.
18 Brakes, Air.
19 Brake Linings.
20 Brooms, Fire.
21 Building Materials, Fire Retardant.
22 Cable & Wire, Fire Alarm.
23 Caps, Firemens.
24 Chains, Non-Skid, Fire Apparatus.
25 Chassis for Fire Apparatus.
26 Chemical Engines and Tanks.
27 City Service Trucks.
28 Coats & Suits, Firemen's Quick Hitch.
29 Combination Chemical & Hose Cars.
30 Cutting & Welding Equipment, Blow Torch.
31 Cutting & Welding Equipment, Electric.
32 Deluge Sets.
33 Door Openers, Fire Station, Automatic.
34 Extinguishers, Fire, Soda & Acid.
35 Extinguishers, Fire, Tetrachloride.
36 Extinguishers, Fire, Foam.
37 Extinguishers, Fire, Powder.
38 Fire Boat Nozzle Equipment.
39 Fire Department Supplies, General.
40 Fire Drills & Organizations.
41 Fire Exit Devices, Door Opening.
42 Fire Alarm Posts.
43 Fire Escapes, Portable.
44 Fire Escapes, Rigid.
45 First Aid Equipment.
46 Flare Lights.
47 Flashlights, Hand.
48 Foam Liquid for Extinguishers.
49 Gas Masks and Respirators.
50 Gas & Smoke Helmets.
51 Gasoline & Oil Handling Equipment.
52 Goggles, Firemen's.
53 Helmets, Metal, etc.
54 Hose Carts, Reels & Racks.
55 Hose Clamps.
56 Hose, Fire.
57 Hose, Chemical.
58 Hose Holders.
59 Hose Jackets.
60 Hose Standardization Tools.
61 Hydrant Draining Pumps.
62 Hydrants, Fire.
63 Jacks for Fire Trucks.
64 Jacks, Shoring & Prying.
65 Ladders, Fire.
66 Lightning Arresters.
67 Motorcycles, Fire Dept. Equipped.
68 Nets, Life.
69 Nozzles, Pipes & Misc. Brass Goods.
70 Packings, Pump.
71 Pads, Pole Hole.
72 Paints, Fire Resisting.
73 Priming Ether, Motor.
74 Pumping Cars, Standard.
75 Pumping Cars, Foam.
76 Pumps, Fire Apparatus.
77 Pumps, Fire Service, Stationary.
78 Pumps, Portable, for Fire Protection.
79 Record Books, Fire.
80 Relief Valves.
81 Reviving Apparatus, Oxygen.
82 Rubber Clothing.
83 Searchlights.
84 Shingles, Fire Retardant.
85 Shirts, Firemen's Special.
86 Sirens, Apparatus & Chiefs Cars.
87 Sliding Poles.
88 Soda & Acid Chemicals.
89 Spark Plugs, Fire Apparatus & Motorcycles.
90 Squad and other Auxiliary Cars.
91 Sprinkler Head Shut-Offs.
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93 Sprinkler Systems, Automatic, Foam.
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95 Starters, Fire Apparatus, Automatic, Air.
96 Steam Fire Engines.
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98 Tetrachloride Chemicals.
99 Thawing Equipment, Hydrant.
100 Tires, Fire Apparatus, Pneumatic, Solid, Cushion and Non-Skid.
101 Tractors.
102 Traffic Clearing, Systems.
103 Triple Combination Pumping Cars.
104 Uniforms.
105 Water Towers.
106 Wheels, Cushion.
107 Whistles, Fire Alarm, Compressed Air
108 Whistles, Fire Alarm, Steam.
109 Whistles, Fire Apparatus.
110 Wrecking Trucks.

----------TEAR OFF HERE----------

FIRE ENGINEERING

225 West 34th St., New York City.

As a fire protection official I should like to have descriptive literature and complete information mailed to me, without cost or obligation, on the equipment indicated by the following numbers:

Date.....

Name .....

Position .....

Street .....

City and State.....

Nos. .....

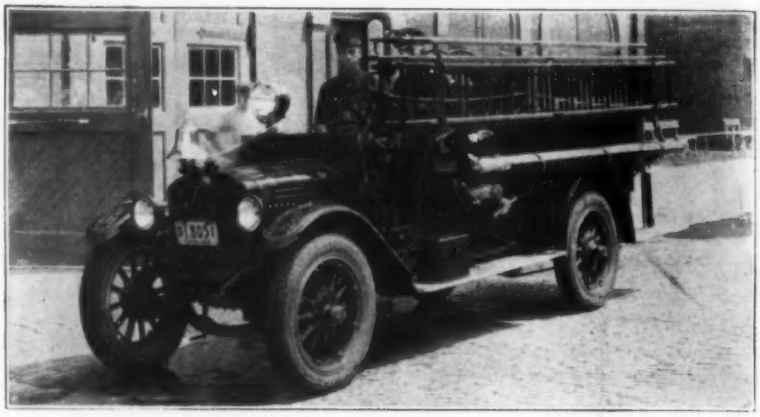
Nos. .....

Nos. .....

For Information on Any Equipment Not Listed Above, Write on This Page or Use Separate Sheet.

Oct. 10, 1926

The Department of Streets of New York City recently bought 180 GMC Big Brute Trucks. They now operate some 900 trucks of which *more than a third are* GMCs—indisputable evidence of the enduring serviceability of GMC units.



Low Cost of Replacement Parts and Unusual Accessibility

Keep GMC Maintenance Costs Low

Many a GMC Truck, 5 years old and more, has had *less than $10 a year spent on it for replacements.* This is not due to chance but is the direct result of General Motors efforts to simplify and make quickly accessible all the parts that are subject to wear.

Every wearing part of a GMC Truck is so designed as to assure *a minimum cost of replacement.* Most parts subject to wear can be immediately replaced from stock. Many of them, such as engine bearings, steering gear parts, etc., are interchangeable:

While such GMC features as detachable cylinder heads, removable cylinder walls and removable valve lifter assembly make the replacing of worn parts a quick and easy job and *reduce labor costs and time-out-for-repairs to a minimum.*

GMC TRUCKS
PRODUCT OF GENERAL MOTORS

Sold and Serviced Everywhere by Branches, Distributors and Dealers of

GENERAL MOTORS TRUCK COMPANY
5800-6600 W. Dickens Ave.
CHICAGO, ILLINOIS

A DIVISION OF YELLOW TRUCK AND COACH MANUFACTURING COMPANY

GMC 1, 1½ and 2½ ton trucks
GMC Big Brute 3½ and 5 ton trucks GMC Big Brute 4 to 15 ton Tractor Trucks
Yellow Cabs Yellow Coaches Yellow-Knight Delivery Trucks Herts Drivurself Cars

Co GMT Co—1926

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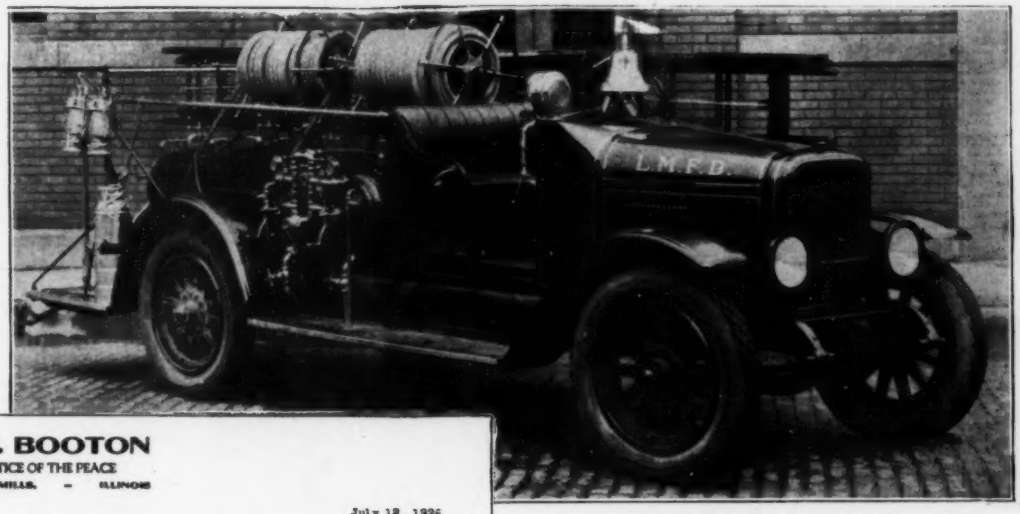

L. R. BOOTON
JUSTICE OF THE PEACE
LONDON MILLS, - ILLINOIS

July 18, 1926

International Harvester Company
Peoria, Illinois

Gentlemen: Attention of Mr. Mathews.

Three years ago we purchased one of your Model S International trucks for the Fire Department. It carries four 40-gallon chemical tanks and all equipment. It has given perfect service over all kinds of country roads and has not cost us a cent for repairs.

I can recommend it very highly for the service it has given us.

Yours truly
L R Booton
Chief of Fire Dept.

The compact and efficient fire-fighting unit owned by the City of London Mills. It is mounted on an International Model S chassis, which has all the speed and stamina required for its important work.

"... Perfect service over all kinds of country roads ... and has not cost us a cent for repairs"—London Mills, Ill.

There is a message in Mr. Booton's letter for fire chiefs in town and city alike. Read it. Then consider how well such stamina and dependability would fit into your department. London Mills found the solution of their problem in the International Model S, 1-ton chassis. Others have found equal satisfaction in this model and in other Internationals up to the 5-ton Heavy-Duty job.

International Trucks are backed by the world's largest company-owned truck service organization; 121 branches in the United States. This highly trained organization makes sure that you will get out of your International Trucks all of the service that was built into them at the factory.

Complete information will be sent on request.

INTERNATIONAL HARVESTER COMPANY
OF AMERICA
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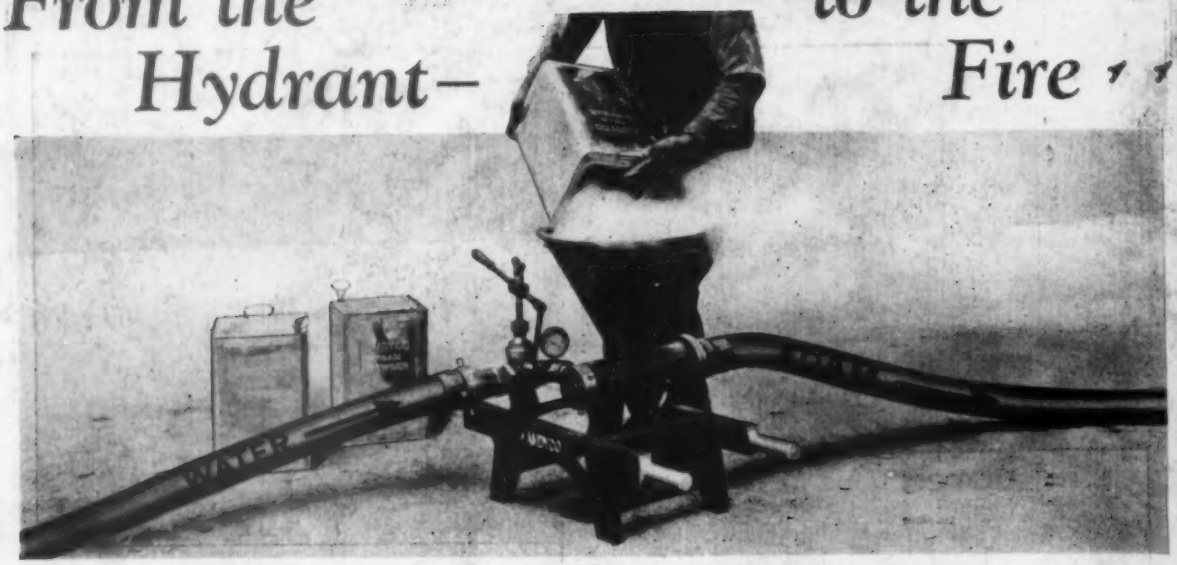
From the Hydrant— to the Fire



CONTINUOUS FOAM!

OUTSTANDING success in controlling both extra-hazardous fires and ordinary fires has created a demand for several different forms of *Foamite* equipment. Most recently perfected of these is the Foam Generator, illustrated above.

This new portable equipment generates fire-smothering foam in quantity limited only by the reserve supply of the dry chemical compound and the availability of water. Thus the Fire Chief can control fires too large for foam hand extinguishers or 40-gallon tank equipment.

The operation of the Foam Generator is simplicity itself. Just connect the equipment into any hose line where the pressure is sufficient, pour the Foam Generator Powder into the hopper, turn on the water, and you have *continuous foam.*

Successful performance on actual fires has demonstrated that this equipment fills a definite gap in the equipment of municipal fire departments. Don't fail to see our spectacular demonstrations at the New Orleans Convention—or write now for illustrated bulletin.

A *message from the* AMDYCO CORPORATION

"Under an arrangement that should prove extremely valuable to present and future users of the Amdyco continuous foam method of fire-fighting, the Foamite-Childs Corporation will henceforth market and service all Amdyco Generator products.

"The New York office of the Amdyco Corporation will continue to fill orders addressed to it, but the complete service will be under the direction of Foamite-Childs Corporation."

FOAMITE-CHILDS CORPORATION
Fire Protection Engineers and Manufacturers
315 Turner Street, Utica, New York
Sales and Engineering Representatives in all leading cities

Foamite-Childs Protection

A Complete Engineering Service

Against Fire

FIRE ENGINEERING, OCTOBER 10, 1926
PRINTED BY THE WILLIAMS PRESS, ALBANY, N. Y.